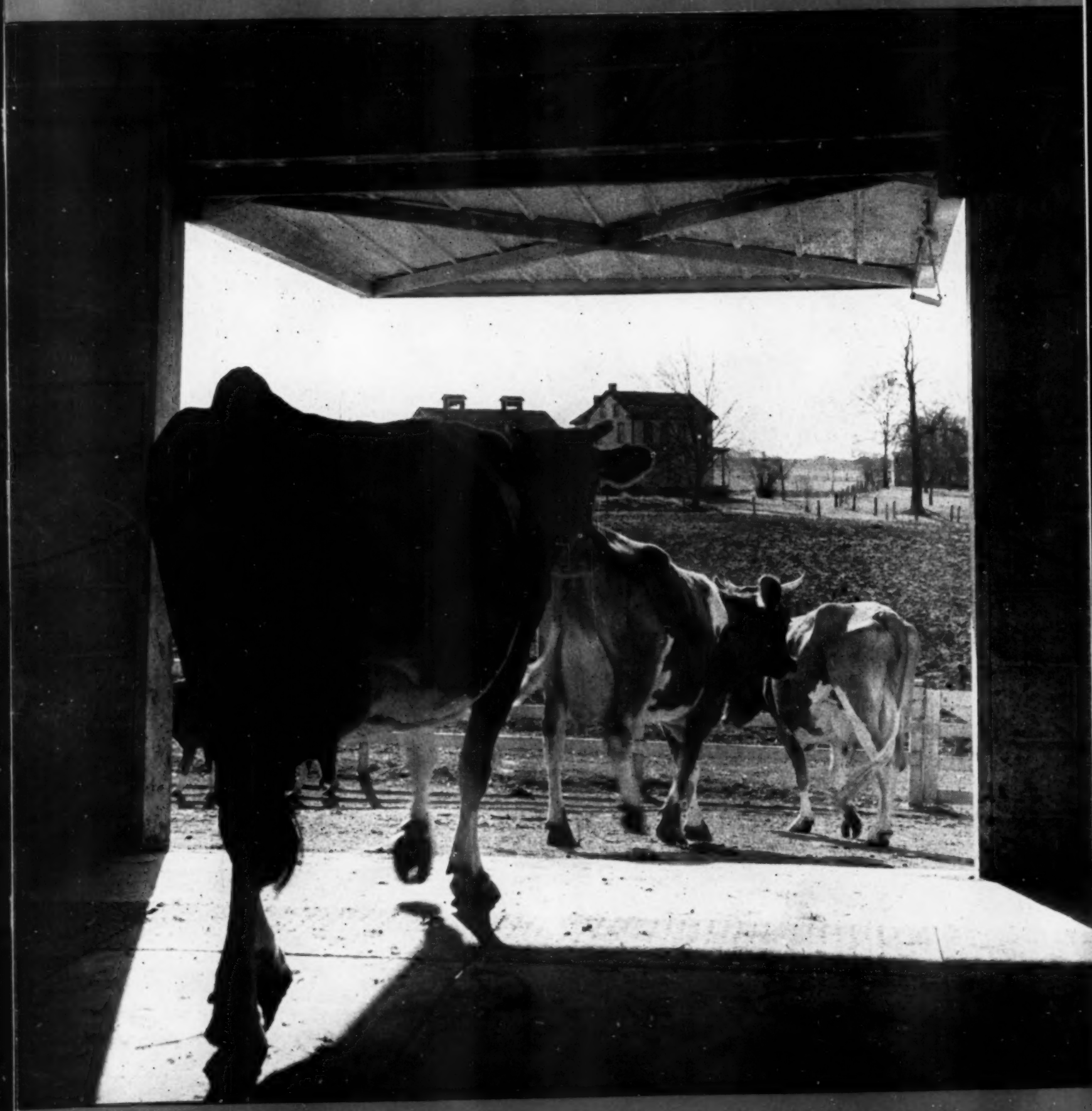
HOARD'S DAIRYMAN

MARCH 25, 1952



THE NATIONAL DAIRY FARM MAGAZINE

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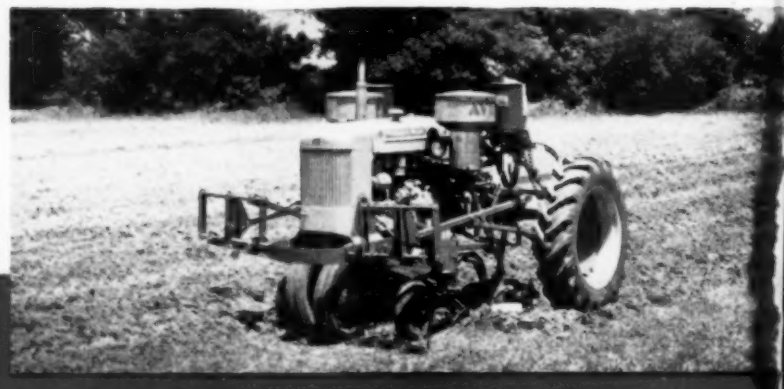

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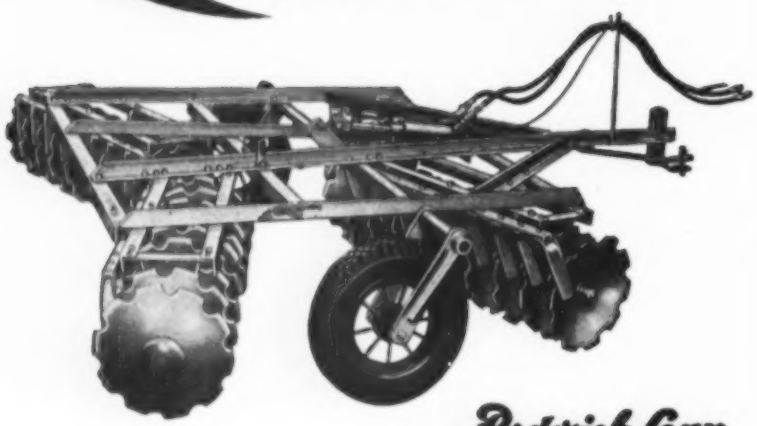

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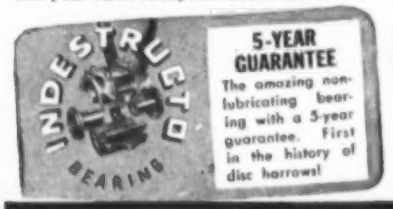

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COVER PICTURE

In most of the more southern parts of the country cows have already been turned to spring pasture. In the North, "it won't be long now." We are pleased to feature as our theme setter this photograph of part of the H. H. Snavely Guernsey herd of Lancaster County, Pennsylvania. Mr. Snavely started farming here in 1897. In his early days he visited the Hoard's Dairyman Farm and considered the founder of this publication as a personal friend of his. Now 81 years of age and recovering from a stroke, Mr. Snavely has transferred his major responsibilities to his nephew, B. Snavely Garber.

Evidence of good management is the fact that for the past three years the 36-cow herd has averaged over 450 lbs. fat. . . . favorite pasture mixture—brome, alfalfa, and ladino.

The cover photograph is by H. Armstrong Roberts.

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Hoard's Dairyman is published on the 10th and 25th of each month. Advertising copy for the 10th of the month issue must be received before the 15th of the preceding month. For the 25th of the month issue, copy must be received by the 1st of that month.

Rumblings of a Rambling Cow Tester

by C. A. Claypool

IN a magazine filled brimful of splendid articles, it is difficult to pick out any one feature and say that it stands out above all the rest. However, after reading two installments of Hoard's Dairyman Round Table, I am ready to say, "This is it!" In this series, outstanding dairymen from all sections of the country discuss down-to-earth problems that are the concern of every dairyman. Most of us do not live long enough nor do we have wide enough range of experience to discover many of the answers for ourselves. If we will read and are open-minded, willing to profit from the experiences of others, we can go a long way in a short time.

* * *

At two of the farms that I have visited recently they have experienced some trouble with cow scours. In each case only part of the herd was affected. At both places the larger part of the roughage fed is grass silage. The herd owners seem to feel that, in spite of careful feeding, the cows had gotten some spoiled silage. Nothing serious, yet something to watch out for.

* * *

The other day one of the fellows said, "After you were here last month my cows went way down on milk. Trying to figure out what was wrong, I remembered that I had not salted them for some time. I began salting them regularly and they came back on milk." Making provision so that the cows can have salt free-choice will prevent an occurrence of that kind.

* * *

For the past two days I have been accompanied out on the job by the man who expects to take over the supervision of the association after I quit. For once in my life I have been able to stand back and watch someone else do my work. For one thing, the experience has given me the assurance that I shall be leaving the work in good hands. In fact, I have found him such a fine fellow that I am afraid the folks will be wishing that I had quit sooner.

* * *

This winter I have been using a ¾-ton pickup truck to make the rounds of the association. I bought it because I expect to get a lot of use out of it when I get out on the farm this spring. In fact, I don't see how any farmer can get along without a small truck of some kind. For the testing job in the wintertime I find it much better than a car. More road clearance and more power to battle all kinds of weather. That is the part I especially like about it.

* * *

Should I purchase a herd sire? With a dozen good, registered cows can I afford to keep a bull? I think I have heard all the arguments in favor of artificial breeding and there are some good ones. All of them leave one vital question unanswered. What about breeding for herd uniformity? Already I have purchased cows from four different herds. Before I finish buying I shall probably draw from that many more. Suppose that in the next couple of years I breed them to five or six different bulls. Can I achieve herd uniformity that way?

General Mills

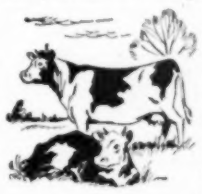
Thrifty Feeding Facts

Dairymen through the ages have long wondered why early spring pasture kicked milk production up so high and so fast.

M.S.F. MAY END MYSTERY OF "Spring Pasture Flush"

New Milk Stimulating Factors (M.S.F.) Seem To Open Door To Higher Year-Round Production.

Anyone who has ever milked cows knows what can happen to every cow, even to the poorest milker in the herd, when she is first put on early spring pasture. Milk flow may be "kicked" higher, almost immediately. This is commonly called "spring pasture flush" or "second freshening." No one has ever been able to completely explain it in terms of nutrients known to be present in grasses. But gradually, experts at Larro Research Farm and elsewhere are unraveling the mysteries hidden in early spring grasses and other sources of milk stimulating factors.



More To Come

Research workers know many nutrients that stimulate milk flow . . . but they also feel that there must be many others still to be discovered. Sometimes certain feed sources stimulate milk production beyond what can be expected from *known* nutritional factors, indicating the existence of yet-to-be-discovered nutrients.

For example, Michigan State College workers discovered a certain unidentified lactation factor or factors.* The best source of this new factor(s) was early spring grasses. You can see why this is exciting news. It seems to link up so closely with that mysterious "something" in early spring pasture that causes "spring pasture flush." These researchers discovered other sources containing this new factor or factors . . . the best of which are included in new Larro Dairy Feed.

M.S.F. In Larro Dairy Feed

Larro Dairy Feed contains many of the best sources of MSF . . . in ample amounts for strong stimulation of milk flow. When more is learned about the newer milk stimulating factors, it is likely to prove just as important to the dairy industry as APF (now outdated), Vitamin B_{12} and Antibiotics to the pork and poultry industry. In the meantime, *dairymen can be certain to get the benefits of MSF by feeding* Larro Dairy Feed, *made by General Mills.*

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*See two articles entitled "The Nutritive Value of Alfalfa Hay" by Drs. C. F. Huffman and C. W. Duncan, Journal of Dairy Science, May, 1949, Vol. XXXII, No. 5, Page 465 and October, 1950, Vol. XXXIII, No. 10, Page 710.

Heard About . . . M.S.F.?*

M.S.F. stands for Milk Stimulating Factors. Dairy experts have come to realize that there must be some unexplained factors that stimulate milk flow, similar to what happens when cows first go on early spring pasture. Certain scientists claim to have discovered a new unidentified lactation factor or factors. Larro Dairy Feed contains some of the best sources of these factors.

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Opinions, Brickbats, Bouquets

These columns are open to the readers of Hoard's Dairyman for the expression of their opinion on any subject, whether radical or conservative, destructive or constructive, wise or foolish, critical or commendatory. Hoard's Dairyman assumes no responsibility for opinions expressed.

Sympathy for "Mrs. Bickered"

HOARD'S DAIRYMAN:—Sympathy prompts me to write after reading the letter from "Bickered" in your January 10 issue. The sympathy is not for "Bickered" but for his wife. She will, I suppose, be heartily condemned by most of the dairymen reading that letter.

From experience I can say that the life of a dairyman's wife is no bed of roses. If she is willing to neglect her housework to help him in the cow barn whenever he thinks it necessary, he is, indeed, blessed. If she does this cheerfully without complaint, he is twice blessed. And if she is the rare wife who is as daft about cows as her husband, then he is surely thrice blessed.

I believe the word "daft" is correct. Otherwise, why would he remain in an occupation where the hours of work are so long and the financial rewards so little? Before our marriage I taught school and intend to teach again when the children are older. Teaching is a supposedly underpaid profession, but I can earn as much by teaching as my husband does dairying and work less than half as many hours doing it.

Don't get me wrong. I'm not completely embittered against dairying. It has many compensations, chief among which is the fact that we need never skimp on milk in our diet. We can have all the finest quality 5 per cent Golden Guernsey milk we want at approximately 11 cents per quart.

I have never urged my husband to quit dairying as I'm convinced he would not be happy or successful in any other kind of work.

Not being able to milk when we were married, I soon learned and thereafter assisted with the milking twice every day except for a time when the babies were too small. Also washed milk utensils every day and spent many hours figuring milk records, registering calves, keeping farm accounts, etc., etc.

There are times, when everything goes well, when milking becomes almost a pleasure. But just when I've decided that I rather enjoy milking, the cow beyond the one I'm milking will perform some necessary business. My cow will swish her tail through it, and whack! her tail will hit me. The effect is somewhat like a warm shower bath, except for the odor. Incidents like these invariably happen to me just after I have washed my hair.

I could write a volume on the cow's tail as an instrument of torture. Sometimes when it strikes you across the face it feels like a whiplash; sometimes more like a rope; other times you feel as if you had been struck by a baseball bat. And when the cow's tail is full of cockleburs and she hits you full on the cheek, that is something else again.

Sometimes, on a hot summer's evening, when my husband is working late in the field and I must do the milking alone and everything seems to go wrong — the cow kicks the milker off and steps on the tubes and they all become disconnected and dirty. Then she steps on my foot and the baby is cross and crying peevishly and stumbling around in the gutter — then I become bogged down in a mire of self-pity and my thoughts run thusly, "What an awful fool I am to continue this drudgery day after day, 365 days a year, no Sundays off, no holidays, no vacations, and all for such an utterly inadequate compensation."

Almost every morning I wash milk utensils and clean out the milk house immediately after breakfast. One day several years ago I wasn't feeling well and spent most of the day in bed. About 4 p. m. I struggled out to the milk house to clean up. To my chagrin, at this inopportune moment the milk inspector arrived on the scene.

After looking over the milk house, he inspected the barn. He returned to the milk house and explained to me that the milk stool should have been hanging up instead of setting on the floor. I had left it on the floor myself as it seemed too much of an effort to hang it on the high nail where my husband customarily put it. If I didn't get it up there just right, it would topple down on my head.

My husband always keeps the barn meticulously clean and when the inspector mentioned the milk stool it was the "last straw." For some unaccountable reason, I burst into tears and the inspector left hurriedly.

Indiana. SYMPATHIZER.

It Isn't a Woman's Place

HOARD'S DAIRYMAN:—I am answering the letter of "Bickered" of Ohio that was in your January 10 issue. His letter was disgusting. A person can tell by his letter there are two sides to that story. Any man who likes farming so well will go ahead and do what he can without his wife helping him do every little dinky job.

If he had more than he could handle alone, he could cut down or get on a smaller farm and still make a living. Some fellows would stand in the barn door, yell and curse toward the house for a half hour for the wife to come out and help milk before they would go ahead and do it alone.

It isn't a woman's place to be out half killing herself trying to do a man's work. I know of a few who have lost their health by the time they were middle age for trying it.

We farmers had better do what we can without killing ourselves and let the wife stay in the house and do the work that is cut out for her.

Wisconsin. KEITH PROPP.

Milk and Coffee

HOARD'S DAIRYMAN:—We in the Middle West are generally confirmed coffee drinkers. We all accept this as a well established social custom and expect to be served coffee at our church, school, and other public and group dinners.

This is all good and well, but we are in a milk producing area and most of us are engaged in the production of milk or otherwise directly interested in this phase of the dairy industry. I, therefore, suggest that

we could do much to popularize and promote milk drinking by having the food committees of our local groups include milk as a standard serving at all public dinners.

My note is for milk in addition to, rather than in place of, the coffee. We have tried this out locally and the idea has been well received. Now we'd like to have the rest of the communities of the milk producing Middle West pulling with us.

Minnesota. A. V. SLATTENGREN.

Buck Rake for Silage

HOARD'S DAIRYMAN:—I have used a buck rake for putting up grass silage during the past four years. It runs on its own wheels and is 12 x 12. I put a pea windrower on a horse mower and about 4:00 o'clock cut what I can put in the next day.

The rake takes three mower swaths and can carry at least a ton. If the rake follows the mower, the same way it does when the mower does the cutting, the hay will not tangle. After a few loads, you know where to start pitching. It comes right apart without pulling.

My daughter runs the rake and we filled a 12 x 40 silo in five or six days. Of course, it is not as easy as sitting on a chopper. Stones generally fall to the bottom or you hit them with a fork and pick them out.

As for distance, we have to go about 140 rods and so can haul about four loads an hour.

Wisconsin. C. L.

Vets Should Judge

HOARD'S DAIRYMAN:— I am writing to you about my findings, theories, and advice on show business. I have been to several fairs, shows, expositions, etc., and came to the conclusion that some of the grand champions and first prize winners are not of the best quality. Some are not of good quality.

I've seen a judge place loose-uddered cows ahead of firm-uddered cows because he must have been concentrating more on his chewing gum at that particular time.

At one place I saw a judge give a grand champion placing to an aged bull that had a backbone like Alley Oop's Dinny. That certain bull was stabled at the show barn side by side with his competing bull. The people (the majority) said the grand championship went to the wrong bull, and it seemed evident that the judge's gears were stripped.

I've seen cows that have been classified Excellent being placed at the end of the line and poorer and less profitable cows taking away the blue ribbons just because the Excellent cow misbehaved a little in the show ring and this bum cow led nicely. It was on my mind at that time to tell the judge, if type is determined by an animal's ease of leading, the showman should go to Egypt or Arabia and get himself a camel.

The American farmer is only interested in quality cows, not pets, so why fool the public? If the judge does not use his brains, the result is that owners of such highly placed cows advertise highly and blow much hot air about their grand champion bologna cows.

As far as I am concerned, the veterinarian knows more about cattle than anybody does. He knows the evolution of animals, the inside of the animals, outside of animals, their care, which ones are most profitable by characteristics. He could tell if the animals are doped, as many of them are at showing time, and which ones are most healthy.

Showing time is the time when dairymen and cattlemen bring in their best animals to compete for the blue ribbons. Only the best, most profitable, and healthiest animals are to receive the blue ribbons as far as real cattle improvement is concerned. Other than that, it positively is detrimental to the nation's cattle improvement and production.

Any common sense will tell you that the veterinarian is the best and most eligible man to judge or classify animals at shows, fairs, expositions, or on any farm.

I would like to hear from some of the breeders to see how they feel.

Pennsylvania. P. D. HOLOWKA.

Above All . . . Practical

HOARD'S DAIRYMAN:—I've been carrying your subscription for some time and think it the finest magazine in the dairying business. I appreciate it more than you know and always read it from cover to cover. The ideas are generally sound and advice is excellent and practical—above all, practical.

You can renew my subscription an additional three years and send me your "Feed Book."

New York. ERICH ROSENBAIN.

What An Average Cow Earns

HOARD'S DAIRYMAN:—All the various literature I have read on the various breeds of dairy cattle fail to point up one important thing. They do not list a dollars and cents return from one average cow over a five-year period. This would offset some of the erroneous thinking that only beef cows are profitable.

Most of the literature brags loud and long over production records of outstanding "Bessie Carnation Ormsbys," which very few of us plain farmers have, but fails to show just how much a farmer can earn from calves, meat, and salvage value (when slaughtered) of old bossie over a five- or seven-year period.

During a five-year production, when the cow would be about seven years old, she should have produced four or five calves, and milk besides for calf and for sale. If these calves were sold at weaning age, why not figure how much the average would bring, etc.?

MRS. J. M. BURLINGAME.

Arkansas.

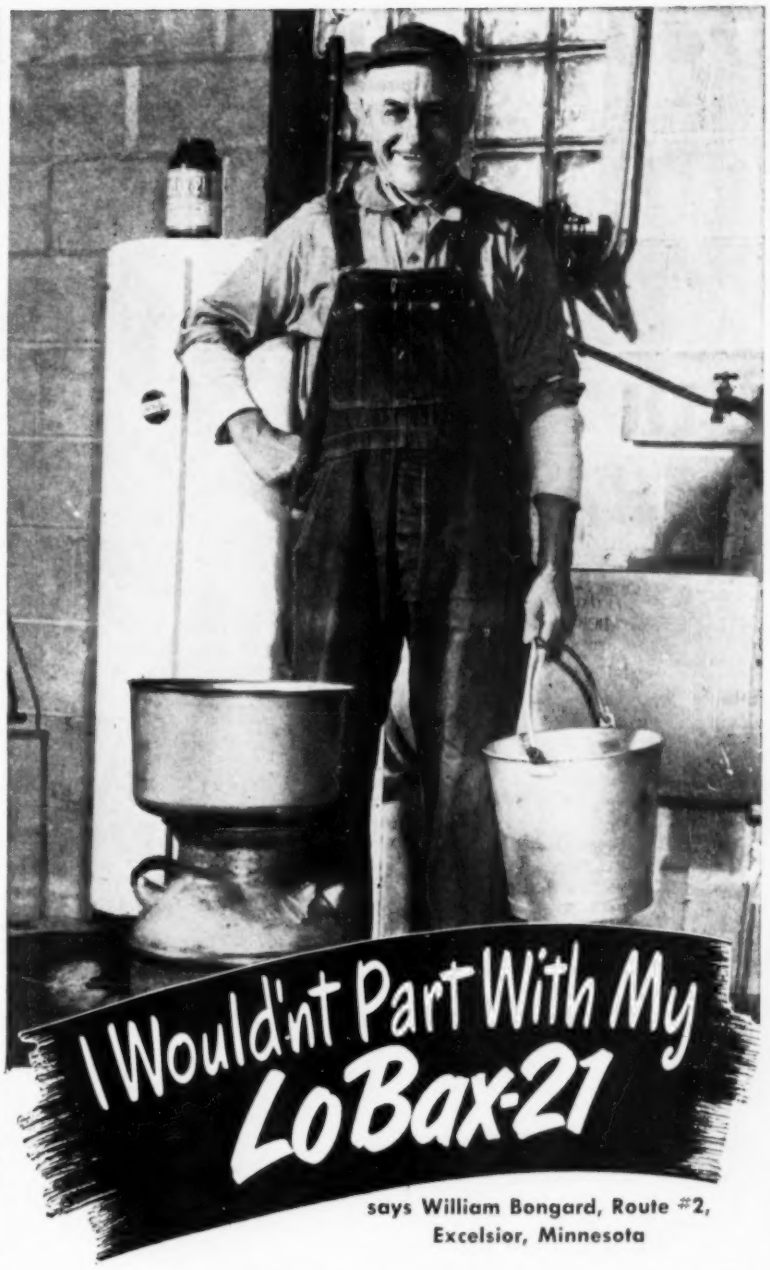
We Receive Thank You Letter

HOARD'S DAIRYMAN:—You will be astonished to hear from an unknown family. I am married to a Polish man who is an invalid. We have three small children—two boys, one two years old and one three; and a daughter eight months old. We are on relief. My husband is thirty years old and unable to work.

My husband received a pair of pants through a relief organization and the only note attached was one of your pink Hoard's Dairyman envelopes. We assume you donated the pants for which we are very grateful. We would be glad to hear from you again. My address is Broitzemer Str. 55, BC 7, St. 42, Braunschweig, Germany.

JOHANNA SIDOWSKI.

Editor's Note: Since we did not send a pair of man's trousers to this organization, this gift was obviously due to the generosity of one of our subscribers.



says William Bongard, Route #2, Excelsior, Minnesota

Long a producer of Grade A milk, Mr. Bongard maintains a strict sanitation program to keep bacteria counts down and milk quality high. That's why he knows when a bactericidal rinse is unusually good for sanitizing pails, cans, utensils and equipment. Mr. Bongard puts it this way—"I use LoBax-21 because I like the wetting agent. Since I started using it, I've had no trouble. I wouldn't part with my LoBax-21. I get no milk-stone with LoBax-21."

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Lo-Bax Special – Contains 50% available chlorine in dry, free-flowing form. Dissolves quickly in water, hard or soft, hot or cold, to make clear, fast-killing rinse solutions. Harmless to cows' udders and milkers' hands.

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HOARD'S DAIRYMAN
Founded in 1885

"Hit and Run" *in the dairy barn*

An Illinois dairy farmer speaks his mind about milk inspectors and why they have worn out their welcome on his dairy farm.

by Mason H. Dobson

THERE has been a story going the rounds for quite awhile out here in the dairy cow country where I live. It concerns a milk inspector who was more than ordinarily a nuisance and somewhat of a vulgar bully to boot. This fellow is reported to have become boisterously and offensively critical when, in the absence of the man of the place, he complained to the farmer's wife concerning several aspects of the farmer's barn which the inspector had found not entirely pleasing to him.

This farmer's wife did not like what had been said to her, and neither did her husband when his wife called him at a neighbor's on her party line telephone and told him what had happened.

So (the story goes) at the next farm where the inspector stopped on his fault-finding tour he was confronted by a quartet of robust and indignant milk producers, each of whom grabbed an ankle or an elbow and dragged the inspector the length of a gutter on his back and his behind; then told him to get the heck out of there, and fast.

I'm convinced that it never happened. When I press for details I'm not able to discover exactly where and when and by whom the deed was done. Besides, my neighbors are law-abiding folks not given to assault and battery.

But while I don't believe they ever did it, I'm quite sure there's not a cow-milking neighbor of mine who would not, at one time or another, have liked very much to have had that or some other inspector by the ankles.

This is not a happy frame of mind for dairy farmers. It does their arteries no good and it is not conducive to tranquility. Nor is it quite fair to milk inspectors either, most of whom are amiable enough, are good to their children, and altogether are quite as reputable taxpaying citizens as their farmer neighbors. In fact I know some very nice inspectors.

Really it is not so much the man who does the job as it is the character of the job itself which annoys the farmer, sometimes almost beyond his endurance. Of course there are a few inspectors who need a bit of guidance in simple courtesy, even when they collide head-on with some farmer who is more than a little lacking in simple courtesy himself. Any inspector can give you examples of the latter.

From the standpoint of the dairy farmer, the complicated data contained in dairy barn inspection sheets add up to a miserable job of public relations. I have not seen anywhere on any inspection sheet a space allotted to the inspector to tell the farmer that he's keeping a good clean barn and doing a proper job, if he is. To be told that would go far toward eliminating annoyance over small and inconsequential matters concerning which the inspector is forced to complain.

Even at the cost of some delay in completing his rounds, I believe no inspector should enter any farmer's barn without first having seen the farmer; or, stopping at the farmhouse if the farmer is not around the barn, to explain who he is and what he is doing. This is no more than simple courtesy. Yet no inspector has troubled to do this at my farm.

Neither do I think that an inspector should leave the place at the end of his inspection without seeing Mr. Farmer to discuss with him personally the criticisms he has to offer. It is not enough and it is not good business for the inspector to scrawl hashmarks all over an inspection sheet and tack it up on the milk room wall and then hike away with never a "Please" or a "Thank you, Mister."

It is bad public relations for one thing, and it is unfair to the farmer, for another. The farmer is entitled to know from the inspector himself precisely what his objections are, and it would do the inspector some good, too, to hear what the farmer has to say. More often than not, common sense will be on the side of the farmer.

There is too much "hit and run" in the dairy farm inspection business. Mostly this is not the fault of the inspector. It is the fault of his employers and the systems under which he is compelled to work. It would be both good business and good fellowship—which also is good business—if inspectors and their employers would mend their ways in this respect. Until they do, Mr. Farmer will not particularly enjoy having them around.

There are other annoyances which irk the dairy farmer. For one thing there are too many inspectors. My barn is subject to an inspection by the city of Beloit, the state of Wisconsin, the city of Chicago, the state of Illinois, The United States of America—and in truth by the health departments of a dozen other cities and states extending from Colorado on the west, to Texas on the south, and New York on the east.

It is true that not all of them have been around yet but it would not be surprising if they should. A lot of them already have.

It isn't so much that I mind if they come. I try to have things tidied up and they're welcome. But it does seem sort of unnecessary and wasteful to have so many doing the same thing. If only there were a uniform standard basis of inspection covering all the fundamental and basic procedures for producing pure and healthful Grade A fluid milk, which is what we are anxious to produce. And that brings me to another and perhaps the most important criticism which I have of the present inspection system:

There is not, so far as I have been able to discover, any basic uniform set of requirements as to equipment, conditions, or procedures to guide the dairy farmer in the production of Grade A fluid milk upon which all inspection agencies have agreed. Until there is, the dairy farmer will continue to be plagued by the separate whims and diverse standards of many agencies and inspectors, and he will be increasingly driven to distraction as the agencies try to out-do each other in contriving new and still more onerous requirements.

For example: In the past 10 years my milk room has satisfied a lot of inspectors. It should, because before it was built I undertook to learn what the requirements were and to meet them. But only the other day another inspector—only one of many—informed me that I must have an additional ventilator installed. Already there is screened ventilation in the ceiling and more than ample windows and screened window ventilation is provided. Now, it seems, that isn't enough. I must have a ventilator in the wall, just so many inches in area, just so many inches above the floor, and all the rest. Oh, well!

My barn is well lighted. It is more than ordinarily well lighted. But an inspector—a different one this time—has told me I've got to have bigger lights above the central alleyway. I must have so many watts of light per animal, he said. I did some lightning (for me) calculation and told Mr. Inspector there was already sufficient wattage. I pointed out to him a row of lights above the stanchions and another row above the central alley and I multiplied the number of watts of each lamp by the number of lamps and divided by the number of cows and it seemed to me there was light enough.

"Oh," said the inspector, "the lights above the stanchions don't count." And by golly, according to his book they didn't.

See what I mean? There's always been lots of good light to milk by and clean up by and clip the cows by and do a bit of painting by. There's always been light enough to satisfy maybe 30 or 40 other inspectors. But there isn't enough to satisfy this Joe because the lights over the stanchions don't count. I'm not being funny. It happened like I'm telling you.

My cow barn is sealed with tongue and groove lumber, smooth and painted. Here and there—I'll confess—some of the paint now has disappeared or it is a little thinner than I'd like. An inspector told me it should be repainted.

Now the reason that paint is worn is because the interior of my barn is washed and scrubbed with soap and water, disinfectant added. If I hadn't washed and scrubbed it the paint would still be there. But the washing and scrubbing meant nothing to that inspector. Only thing that mattered to him was that the paint was thin in spots.

I might have asked him which was the more sanitary—a barn with thin paint that had been washed and scrubbed, or a barn with thick paint that hadn't been.

I thought of asking, but it would have been foolish of me and so I didn't. You never win an argument with an inspector. And anyway I'm not as tactful myself as I used to be and you never know what sort of mayhem a question like that might lead to, me being as short-tempered as I sometimes get.

I could go on like this for quite awhile, but it would all add up to the same: Too frequent disregard by inspectors of the essential cleanliness of place and procedures, and too much attention to inconsequential and trifling matters quite unconcerned with my Blue Test or the quality of the animals and the stuff that comes from them to fill the bottles that some deliveryman gets as much for delivering as I get for filling.

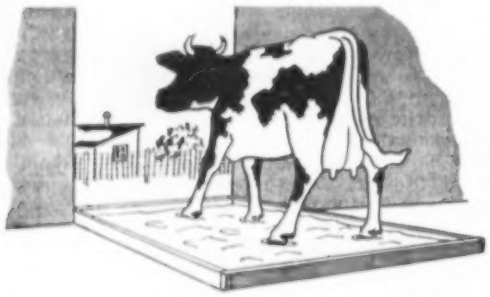
THE END

Farm Flashes . . . .

Seasonal reminders and research notes for the dairyman

GUARD AGAINST FOOT ROT

On many dairy farms foot rot is a problem, particularly in early spring when cows have spent much of their time in the barn standing in manure. An effective preventive is hydrated lime



used in a foot bath. In addition to acting as a preventive, it will speed up recovery of cows affected with foot rot.

The simplest method of treatment is to walk the herd through a box of hydrated lime built into the milking barn doorway. If the floor is concrete, a frame of four 2x4's on edge is adequate. It should be as wide as the doorway and at least 8 feet long. The box should be kept nearly full of hydrated lime.

If possible, mud should be hosed off the animals' feet so that the lime can contact the skin directly. Care should be taken not to cut or dig into lesions between the claws of swollen feet.

Foot rot can also occur on very hard, rough, dry ground, when hoofs become so dry that they crack open. While it rarely causes death, infection may extend to the joint or tendon sheath, requiring surgery.

Economic loss is measured in terms of a severe drop in milk production, loss in body weight, and a long recovery period with expensive treatment.

IT'S NOT ALWAYS TRUE

According to Connecticut Dairy Specialist W. R. Hesseltine, it's not always true that high producing cows get more grain per 100 pounds of milk than do low producers.

It is a fact that high producers eat more concentrates during the year but the grain consumed per one hundred pounds of milk is about the same.

In fact a careful study of all dairy herd improvement association records in Connecticut for two years shows that the top half of the herds eats slightly less grain per one hundred pounds of milk than do those herds below the average.

The high herd in milk and fat in one county in 1951 had the lowest consumption of grain per one hundred pounds of milk.

ERADICATE BRUSH WITH CHEMICALS

Cleaning up hedge rows and brush patches — a job that many farmers do at this time of year — is a lot easier than it used to be.

The new weed killing chemicals, applied during the dormant season, control a good many of the brushy species. John Baylor, Rutgers University crop specialist, suggests spraying with a combination of 2,4-D and 2,4,5-T.

Mix 4 pounds of the actual acid with 40 gallons of No. 2 diesel fuel, he advises. This is about enough for an acre of brush and it's important to use enough liquid for good coverage. In many cases more than one application is required for complete control.

Baylor says that this spray can be used right up until early April. Most broad-leaved plants are killed by this treatment, but some are less effectively controlled because it's harder to cover them. Among these are bramble, sumac, and poison ivy.

Young trees with trunks more than two inches thick have to be cut. Then the fresh cut stump is sprayed or the sprouts are sprayed when they are 4 to 12 inches high.

FEED OUT PACKING SOWS

Feed out those thin sows before you ship them off to market.

That's the recommendation of University of Wisconsin animal husbandmen who have conducted sow feeding experiments.

Sows that have just weaned a litter of pigs can make good use of feed over a two-month fattening period before slaughter.

Daily gain and cheapness of gain in terms of feed required compare well to that of young pigs. Additional finish on the sows will raise their market grade, increasing sales value about 10 per cent per pound.

In the feeding trials sows averaged 233 pounds at the beginning. Their pigs averaged 58 pounds. Feed costs per hundred pounds of gain for the young pigs was $10.60. It was only $8.50 to $9.00 for the packing sows.

Ordinarily it doesn't pay to fatten the sows for more than two months. A longer feeding puts on too much fat and lowers sales value per pound.

TRACTORS CAN KICK, TOO

Now that tractors have taken the place of many horses, a few precautions are very much in order since tractors can be dangerous.

It is well to keep at least seven rules firmly in mind in handling your tractor:

1. Be sure the tractor is not in gear when starting.
2. Drive carefully; tractors were not meant to be racing vehicles.
3. Never allow extra riders on tractors.
4. Don't refuel or work on tractor while it is running or extremely hot.
5. Avoid wearing loose, hanging clothing while operating tractor.
6. Be careful when coupling implements to tractors.
7. Keep power line shield in place; stop power takeoff before dismounting.

PAINT FOR METAL ROOFS

Results of fifteen years of experimenting with metal roof paint have shown which paints are best for making roofs last longer. A. J. Bell, Michigan State College agricultural engineer, says that of 92 different paints tried out, only six or seven showed much value for metal roofs.

Zinc metal paint has stood up best. It is composed of zinc dust, zinc oxide, and oil. Second best paint proved to be red oxide which has been used on barns for many years. It should be of high quality if it is to be used successfully. Aluminum ranked third best and was found to have a longer duration if a base or rust-slowing coat was put on first.

Brushing aluminum paint over rust on metal roofs is just a waste of time and money, the experiments showed. Although steel brushing was formerly recommended, it has since been proven that the life of a paint job is about as long when the rust is swept off with a stiff broom. There isn't enough extra life in the paint to warrant steel brushing.

CUT SWINE ENTERITIS LOSSES

Each spring farmers lose hundreds of dollars as the result of swine enteritis in their hogs. It should be remembered that enteritis is not a single disease, but that it covers a dozen different infections and disorders. For this reason, treating with one particular drug may be useless. Treatment depends on the individual herd and should be determined only after an accurate veterinarian's diagnosis.

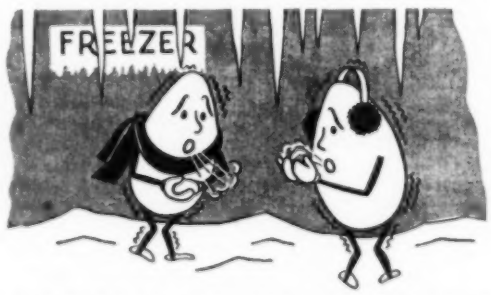
The American Foundation for Animal Health suggests these seven preventive steps:

1. Isolate newly-purchased swine from the home herd until they are known to be free of enteritis.
2. Control internal and external parasites.
3. Keep swine away from old hog lots, contaminated pastures, cow pastures, stagnant pools, and other sources of infection.
4. Keep feeding and watering equipment clean.
5. Feed balanced rations, and don't overfeed rich concentrates.
6. Earmark sows and their litters to identify and weed out carriers.
7. Watch for scouring, loss of weight, and unthrifty pigs. At the first sign of trouble, get a diagnosis and isolate the sick animals from those that are healthy.

DIRECTIONS FOR FREEZING EGGS

With more and more homes now equipped with home freezers, there has been a growing interest in freezing eggs. When you choose eggs for freezing, be sure that they are clean, fresh, and of high quality.

You can freeze the eggs as whites, yolks, or in their whole form, depending on how you're going to use them. The whites are especially good for



angel food cakes. Yolks with sugar can be used for soft custards or cakes and those with salt for salad dressing. When sugar is added to whole eggs, they are very suitable for custards, cakes, or other baking. Those frozen with salt can be used for scrambled eggs.

The whites are the easiest to freeze. You don't need to mix or add anything to them. When you freeze yolks, mix and then add a teaspoon of salt or a tablespoon of sugar to each cup.

Food specialist Frances Van Duyne of Illinois says that when freezing eggs whole, just break them and mix together thoroughly, but do not beat. Add either salt or sugar in these proportions — one tablespoon sugar or one teaspoon salt for two cups of eggs.

After you've packed the eggs in moisture-vapor-proof containers, be sure to label them carefully, as you should set a time limit for their use. Whole eggs and yolks should not be kept in freezer storage for more than six months, while the whites can be stored for a year.

When you want to use the eggs, simply thaw them in the refrigerator overnight or for a shorter time at room temperature or in water.

Something New . . .

For Filling Silos

Vertical elevator moves 10 tons of grass silage, 30 tons of corn silage per hour.

by Albert S. Mowery

THE forage elevator is coming back. You read, in the November 25 issue of Hoard's Dairyman, about a new type, incline elevator for filling silos. This is a report on a different type of elevator that we have found very successful in our research work at the Pennsylvania Agricultural Experiment Station.

The vertical elevator, pictured at the top of the page, can save you 85 cents per hour in power costs and you can fill silos as rapidly or faster than you are doing today with blowers.

Back before the turn of the century, our first silos were filled with incline elevators powered by gasoline engines. Many of you can remember when corn was cut by hand in the field, and also chopped by hand at the silo. Later we used larger gasoline engines to power the chopper and the elevator. Farm tractors brought us more power. This led to the use of ensilage cutters fitted with a blower. With more grassland farming being practiced, the ensilage cutter at the silo will be replaced.

We are chopping more and more of our ensilage in the field now. Unloading chopped forage has been partially solved by the use of wagon unloaders and dump trucks. The ensilage blower and the suction blower (vacuum unloader) are the machines commonly used to deliver the field chopped material into the silo. Both of these machines handle corn silage without difficulty, but problems still exist when blowing grass silage and wilted hay.

We have plenty of proof that elevating chopped forage by blowing results in a very inefficient use of power. We oftentimes use a 35-horsepower engine to do the work which should be done by less than one horsepower.

At the New Jersey and Iowa Experiment Stations research workers found that chopped forage could be elevated vertically with a drag type elevator. At about the same time, farmers began to use five and 7½-horsepower electric motors for drying hay and grain. If we could use these motors to elevate chopped forage, we could save a considerable amount of power at the silo. Furthermore, it would release a tractor for other uses at silo filling time.

In the past few years some farmers have been using conventional elevators with some success in filling silos. These incline elevators had certain disadvantages, such as low capacity, discharging into silo, problem of erecting, and danger of being blown over. Based on this experience, we set out to develop a vertical elevator.

In the summer of 1950, the author and others at the Pennsylvania Agricultural Experiment Station, with the cooperation of the Link Belt Company, designed, constructed, and tested a small model elevator. We found that ensilage could be elevated vertically at a good rate at low horsepower.

Based on our trials, we found that the chain speed should be between 700 and 800 feet per minute; the flight should be about 7½ inches wide and five inches high for an 8 x 6-inch chute. The clearance at the bottom should be about one inch. The flight spacing should be about 15 inches and the ensilage should be fed into the down chute of the elevator.

Armed with this information, we built a 36-foot, experimental vertical elevator. During the 1951 silo filling season, a series of tests were made with this elevator at the 36-foot silo in which a total of 21 tons of grass silage and 83½ tons of corn silage were elevated.

After a number of tests were made, we found it was possible to elevate grass silage at the rate of about 10 tons per hour, using, on the average, 4.5 horsepower. With corn silage the results were much better. By using a 10-inch auger feed it was possible to elevate at a rate up to 29.9 tons per hour.

You will note that the rate of elevating grass silage was comparable to the conventional blower. Also, that the rate of elevating corn silage, with the same vertical elevator, using a five horsepower electric motor, was somewhat better than that done with conventional blowers powered by a two-plow tractor. The results were considerably better than suction blowers, powered by a 35 horsepower gasoline engine.

Both the chain feed and the auger feed were used in the testing work. Chain feed gave better results with grass silage than did the auger feed, but just the reverse was true with corn silage. Throughout the testing work, a separate motor was used on the feed mechanism. This was done to help us in our testing work and give us information on developing a feed unit.

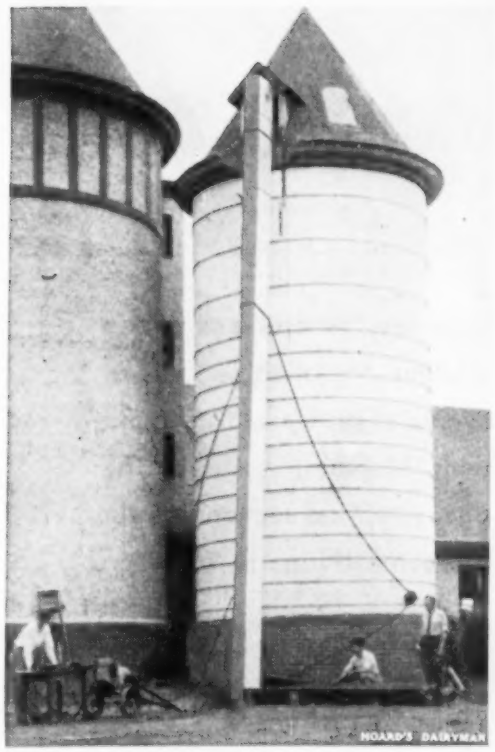
As a result of the work done at Penn State, several commercial test elevators are being designed, with hopes that they can be used during the 1952 season. The plan is to develop a unit designed so that a farmer can pull up a load of ensilage, unhook the tractor, press a button, and drive off for another load. All the work would be done with a single electric motor, of either the five or 7½ horsepower size. The main problem, at present, with the vertical elevator is that of uniform feeding. It is possible to stall the motor but there is no problem of the chute clogging.

It is our opinion that the vertical elevator should be used as a simple unit, consisting of merely a chute, chain, and sprockets to be erected permanently at the silo. Safety, convenience, and cost would be the main advantages for the permanent unit.

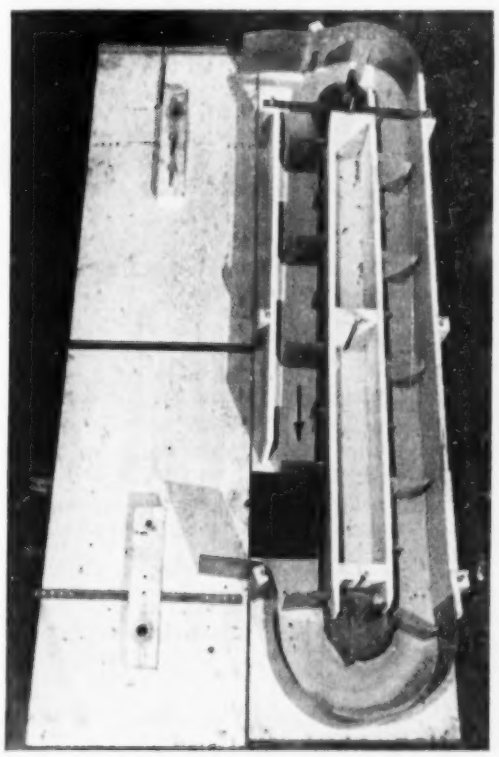
The motor and feed unit, which are the most costly parts of the equipment, could be taken from silo to silo and from farm to farm.

For further details of the vertical elevator tests at the Pennsylvania Agricultural Experiment Station, State College, Pennsylvania, write for Progress Report No. 64, "A Vertical Elevator for Handling Chopped Forage," by Mowery, Clyde, and Walton.

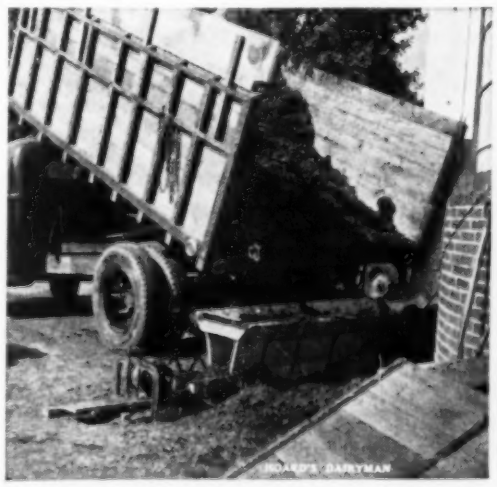
THE END



Specially built at Penn State for use in their trials with elevators for filling silos was the 36-foot one shown above.



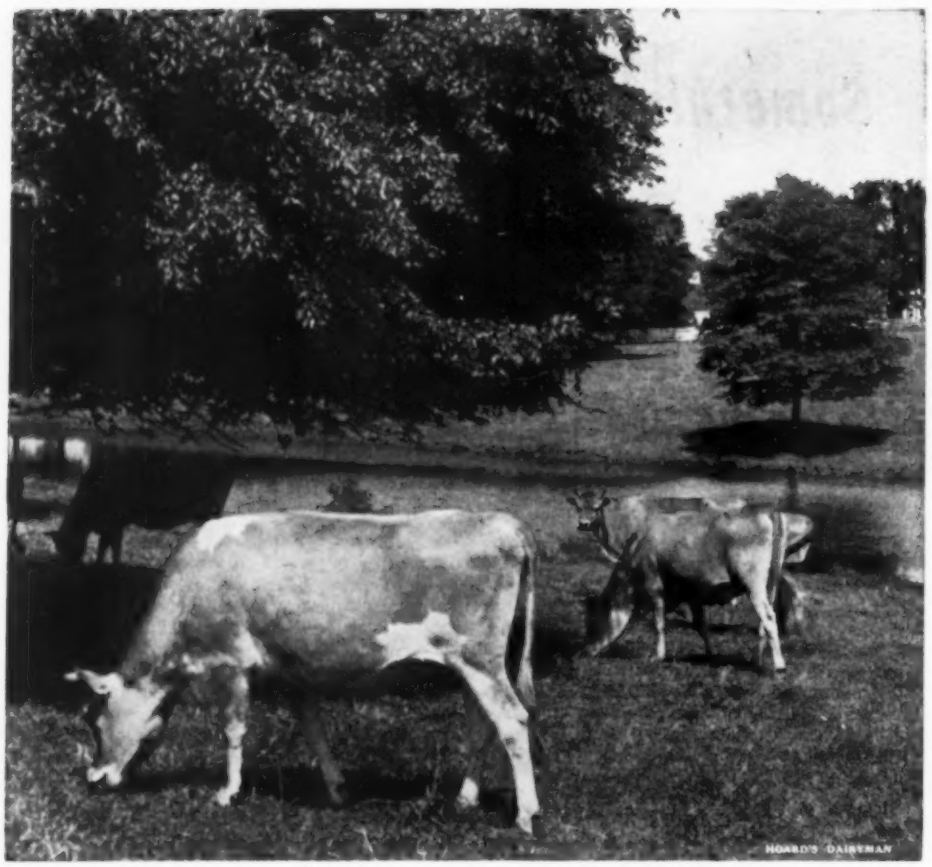
The 8-foot experimental vertical elevator. Side is removed to show detail; arrow indicates direction of chain travel.



Unloading chopped forage from a dump truck into the chain feeder, which produced better results with grass silage.

An experimental worker is distributing corn silage from a canvas bottom wagon unloader evenly into the auger feed.

Here are the opinions of ten leading dairymen on several everyday problems concerned with breeding heifers. The age, size, and season of year are some things to consider.



"When Our Heifers Are Bred"

GETTING heifers bred at the proper size and age can mean the difference between profit and loss in the dairy business. There are a variety of opinions on this subject so we have asked The Hoard's Dairyman Round Table to give you their ideas on the best time to breed, how shy breeders are handled, and how heifers of breeding age are fed.

• AT WHAT AGE ARE YOUR HEIFERS BRED? WHAT IS THE MINIMUM AGE?

Mr. Ralph Space, New York: The average age is 15-16 months; none are bred when less than 15 months old.

Mr. Frank Astroth, Minnesota: 17 to 18 months on the average; the minimum age is 14 to 15 months.

Mr. Ben Friederich, Washington: We like to have them bred before they are 18 months of age. We don't breed them before they are 16 months old.

Mr. Sylvester Weiler, Wisconsin: 16 to 17 months, with 16 months the minimum.

Mr. Ward Crim, South Carolina: 15 to 18 months; the minimum age is 15 months.

Mr. Delbert Kingston, Illinois: 17 to 18 months of age; the minimum is 15 months.

Mr. Scott Meyer, Missouri: 17-18 months; the minimum age is 15 months.

Mr. G. A. Bowling, New York: Most of our heifers are bred between 20 and 22 months, will breed as young as 14 months if the heifer is extremely large.

Mr. Robin Carr, Michigan: The average is about 21 months, with 15 months the minimum.

Mr. Bill Hitz, Iowa: 16 or 17 months; the minimum is 15 months.

• DO YOU PAY MORE ATTENTION TO SIZE THAN AGE? WHAT SHOULD HEIFERS WEIGH AT BREEDING TIME?

Astroth: Yes. An unusually growthy heifer may be bred at 15 months. Jersey heifers should weigh from 500-600 lbs. at breeding time.

Friederich: We feed our heifers well and never have one that is not large enough to be bred before it is 18 months old. Guernseys should weigh at least 700 lbs.

Weiler: No. We try to get good growth on our heifers. If they are not up to the size heifers would normally be at this age, we would eventually eliminate them.

Crim: Yes. Jerseys should weigh from 450 to 500 lbs. at breeding time.

Kingston: No.

Meyer: Yes. We feel size is more important than age. We keep accurate weight records on our cows as a breeding guide, but since the heifers are usually kept in loose pens we do not have a practical way of taping them.

Bowling: No.

Carr: Yes. By all means. We watch the size and not the clock. We have never weighed them.

Hitz: Both are taken into consideration. Guernsey heifers should weigh 600 to 700 lbs.

Space: We pay more attention to size than age. Holstein heifers should weigh at least 750 lbs.

• DO YOU NORMALLY TAPE YOUR HEIFERS BEFORE BREEDING?

Everyone answered "No" to this question.

• DO YOU CONSIDER AGE AND SIZE OF BULL WHEN BREEDING HEIFERS?

Friederich: We breed all of our heifers artificially. We don't consider it good practice to breed heifers to an older herd sire. In our experience we have had considerable trouble getting heifers settled to the older herd sires in natural matings.

Weiler: No, we breed only artificially and unless a sire is known to sire unusually large calves, we breed heifers to a bull regardless of his size and age.

Crim: Yes.

Kingston: No. We breed artificially.

Meyer: We consider his size, if an aged bull. If too large, we use a junior sire or use the older bull artificially.

Bowling: We always breed heifers to young bulls, since conception rate is better, and we have an unselected group on which to prove the bull.

Carr: Yes.

Hitz: No.

Space: No.

Astroth: To some degree.

• WHAT SEASON OF THE YEAR DO YOU PREFER TO HAVE YOUR HEIFERS BRED?

Weiler: When our animals are ready to breed, they are bred regardless of the time of year.

Crim: We prefer to have them bred in December and January so they will freshen in the fall when the milk plants need more milk. In addition they make better records when they freshen in the fall.

Kingston: We prefer to have heifers calve after July 1 and after January 1 since should an animal be shown, it would have the full advantage of age.

Meyer: We prefer breeding in November and December. This is because cows under our conditions milk 2,000 to 3,000 lbs. more when fall

These are the dairymen participating . . .

RALPH SPACE, Holstein breeder from New York.

FRANK ASTROTH, Minnesota dairyman - Jersey breeder.

BEN FRIEDERICH, Guernsey breeder from Washington.

SYLVESTER WEILER, manager of Pabst Farms, Wisconsin.

The HOARD'S DAIRYMAN ROUND TABLE

freshened and milk prices are likewise more favorable. Since our cows get strung out throughout the years in their freshening, we try to have all heifers freshen in the fall. Yet we will not freshen them at less than 24 months or over 30 months.

Bowling: I prefer late autumn and early winter breeding for heifers in order to secure maximum yields and a maximum price for milk.

Carr: We breed them at all seasons; try to have our milking herd on even production each month.

Hitz: There is no preference.

Space: I would like to breed for fall freshening because one always has some cows lose a little time. Heifers in the fall help to keep the winter milk production up.

Astroth: Prefer breeding in October and November for early fall calving.

Friederich: We breed all our heifers when they become the right age, except for those that would freshen in July and August. We don't like to have any of our cattle calve during these months because they are our poorest pasture months and our worst fly season.

• WHAT IS YOUR FEEDING PROGRAM FOR HEIFERS OF BREEDING AGE?

Crim: When heifers are on good pasture, they have enough fat without grain. If not on good pasture, we feed them some grain to bring them in good flesh before calving.

Kingston: We like a good quality hay along with good pasture.

Meyer: Heifers at breeding age get only roughage. If they are bred in the late fall, as we prefer, they are on silage and second cutting hay, all they will take. We feed no grain during their second year, since we prefer that they develop depth of body and feeding capacity. Only in cases where their condition indicates a need of some grain do we ever feed any in the second year.

Bowling: Plenty of roughage with the intent of having the heifers in thrifty growing condition.

Carr: Lots of corn silage and hay in winter and lots of pasture (mostly wild) in summer plus 3 to 5 lbs. corn and oats the year around.

Hitz: In summer, good pasture supplemented with hay and a light grain ration. In fall and winter, corn silage, hay, and a light grain ration.

Space: Lots of good hay, pasture, limited silage, and some grain.

Astroth: Pasture, if available, plus a small amount of grain in summer. In winter, plenty of hay, silage, and a small amount of grain.

Friederich: We feed our heifers grain twice daily and give them free access to hay and water at all times, except about three months in the spring during the flush pasture season. Our grain mixture for heifers is as follows: 300 lbs. millrun, 300 lbs. rolled oats, 50 lbs. ground corn, 50 lbs. beet pulp, 2% mineral, and 2% salt. We feed 4 lbs. of this mix per day, 2 lbs. per feeding for growing heifers.

Weiler: All heifers are grained until 13 months of age. After that they are fed good corn silage in the amount they will clean up. Hay is fed in a rack and kept filled at all times. During the summer good lush pasture is provided and hay is kept in a covered rack.

• HOW OFTEN DO YOU CHECK HEIFERS FOR HEAT PERIODS?

Kingston: Twice daily.

Meyer: We mark heat periods on a breeding calendar and are constantly observing.

Bowling: All heifers are checked each day.

Carr: We watch them every day.

Hitz: Continuously.

Space: We try to record regularity of heat periods before any heifer is bred.

Astroth: Very often when approaching breeding age.

Friederich: Twice daily . . . at feeding time.

Weiler: Once a day.

Crim: Every day when they are old enough to breed.

• HOW DO YOU DETECT HEIFERS IN HEAT?

Meyer: Usually they are in groups together where it is easy to observe. We never keep heifers of breeding age by themselves.

Bowling: In addition to the "riding" manifestation, the heifers are checked for evidence of natural discharge and swelling of the vulva.

Carr: By noting if they are riding other heifers, or vice versa.

Hitz: Riding other heifers, running the fence line, bawling, swollen vulva, discharging mucus.

Space: Heifers run loose together and are watched as carefully as possible.

Astroth: Riding, if loose, excitability, bawling.

Friederich: It is quite easy to detect a heifer in heat if they are checked twice daily. In most cases they try to mount other heifers in the group.

Weiler: We keep a record of all heat periods of every animal. If an animal is uneasy, bawls and does not ride, but has a slight discharge, it is a good sign she is in heat. Other cases are determined by riding or puffiness of the vulva and a discharge.

Crim: Most heifers can be detected by watching other heifers ride them but some do not do this. You usually have a cow around that wants to ride everything on the farm so put her with this heifer and she will let you know when she is in heat.

Kingston: Riding one another, restlessness, and observation of the vulva.

• AT WHAT STAGE OF THEIR CYCLE DO YOU TRY TO HAVE HEIFERS BRED?

Bowling: No particular attention is paid to this.

Carr: While it varies, we usually wait a little.

Hitz: Toward the end or about 10 hours after noticing the first signs of heat.

Space: Late in heat.

Astroth: Late.

Friederich: We try to breed them about the time they are going out of heat.

Weiler: Late in the cycle.

Crim: The last part of the heat period.

Kingston: During the last few hours of standing heat.

Meyer: We breed them when they are known to be in heat without regard to cycle.

• DO YOU HAVE ROUTINE PREGNANCY EXAMINATIONS MADE ON BRED HEIFERS?

Carr: Some, but not always.

Hitz: Yes.

Space: Yes, after two months.

Astroth: We do some ourselves.

Friederich: We examine all of our heifers after they are bred at least 90 days.

Weiler: Yes.

Crim: No, we do it ourselves.

Kingston: Yes. All heifers are examined from 45 to 60 days after they have passed over.

Meyer: No, except in trouble cases, which are rare.

Bowling: Yes.

• IF YOU HAVE TROUBLE GETTING A HEIFER SETTLED, WHAT STEPS ARE TAKEN?

Hitz: She is examined by a veterinarian, and his recommended treatment is made.

Space: Have a vet examine her and follow his advice.

Astroth: If heat periods are irregular, she gets a couple of shots of dyethyl stilbesterol. If heat periods are regular, she gets a hormone shot.

Friederich: By breeding our heifers artificially ourselves in a very sanitary manner, we have very few comebacks. In case a heifer does not conceive from the first three services, we have her checked by a veterinarian.

Weiler: If heifers have been bred four or five times and have regular heat intervals, we breed them to fresh, undiluted semen. If there is still trouble, they are examined by a veterinarian and future breedings are determined by his recommendations.

Crim: We treat them ourselves.

Kingston: Examination by a qualified veterinarian to determine, if possible, the cause, then corrective measures are instituted to carry out the recommendation of the veterinarian.

Meyer: We have had so little trouble that we are not qualified to discuss.

Bowling: We usually follow the recommendation of the veterinarian, although little trouble is experienced.

Carr: We do everything. Have them examined by the veterinarian, breed them artificially with our own bulls, and breed them naturally.

• HOW LONG WILL YOU KEEP A HEIFER THAT IS A SLOW BREEDER?

Space: Until two years old, or until she is known to be a shy breeder. On the average we have to breed our heifers twice before they conceive.

Astroth: 30-33 months, or until she is known to be a shy breeder if from a good cow family. Our conception rate varies. In 1949-50 it was 1.4 breedings per conception. In 1951-52, two breedings per conception.

Friederich: If the heifer is valuable we keep her as long as 30 months. We have about 90% of our heifers settle to the first service by artificial insemination. When we bred our heifers naturally we had about 70% conception rate.

Crim: Two years . . . our first-calf heifers conceive on the second service, on the average.

Weiler: Three years. We normally breed first-calf heifers twice, on the average, before they conceive.

(Turn to page 282)

WARD CRIM, South Carolina dairyman, Jersey breeder.

DELBERT KINGSTON, Supt., Curtiss Candy Co. Farms, Ill.

ROBIN CARR, Mich. dairyman and Holstein breeder.

GUS BOWLING, manager of Strathglass Farm, New York.

BILL HITZ, Iowa dairyman and Guernsey breeder.

SCOTT MEYER, Missouri farmer and Holstein breeder.

—Photo by California Fig Institute

Dairymen of Merced County, California, depend heavily on irrigated pastures. It is the basic crop in their feeding program as on this farm of Tony Vierra.

A Fresh Pasture Every Day

Irrigation is an every day chore on this dairy farm but it pays. *by McCall Smith*

PAUL TEIDEMANN, in the Napa Valley, California, found irrigated pastures the prime factor in his well-balanced feeding program. His 55 milking cows gave another three cans of milk daily when they first went on irrigated pastures. He feeds 65 head of milking and dry stock on his 60 acres near St. Helena. His cows average 435 lbs. fat annually. All other production and feeding operations on this dairy farm supplement the irrigated pastures.

The 24 acres of irrigated pastures make it possible for Teidemann to devote the remainder of his acreage to production of forage for silage and hay. His pastures of ladino clover, ryegrass, and orchard grass provide daily green feed for the herd during nine months of the year. Only the concentrates, which Teidemann feeds according to production, are purchased off the farm.

This progressive dairyman plants 12 acres of oats and vetch in the early winter right after harvesting the corn. The oats and vetch go into the silo in May. The same 12 acres is immediately prepared and planted to corn. In this double cropping scheme, Teidemann takes off 1½ tons of oats and vetch and 25 tons of corn silage to the acre. He also has 21 acres of alfalfa. The first and last cuttings are made into silage and the other cuttings are chopped and barn-dried for winter hay.

Forage for 65 Head—24 Acres

Although a rich loam soil, long growing season, favorable climatic conditions, and good pasture management contribute to the heavy production of Teidemann's pastures, he says controlled moisture through irrigation is the first reason he can produce green forage for 65 head from May to December on just 24 acres.

Irrigation is an every day chore at Teidemann's. He uses pipe and sprinklers, although his land could be graded for flood irrigation. He would have to spend about $125 per acre to grade the land and he would lose the use of it for one year, which Teidemann says would cost more than the actual grading of the land. Cost of moving the pipe every irrigation is usually given as the argument in favor of grading the land for irrigation in checks or contours.

Teidemann does not think his costs for handling the pipe are excessive, about one dollar per acre for each irrigation. Most of the irrigation water is pumped from a well, although some parts of the farm are irrigated from the creek. A 15 horsepower electric motor delivers 285 gallons a minute from the well. With this supply, the sprinklers apply equivalent to three inches deep on the land in three hours. Then the pipe and sprinklers are moved. The pastures are irrigated every ten days.

Favors Sprinkler Irrigation

Where Paul Teidemann carries on his dairy operations there is much discussion these days about the relative merits of flood irrigation and sprinkler irrigation. University of California irrigation engineers say that every farm has its own problem, since conditions that affect the method to be used vary widely.

Flood irrigation may mean strip checks, contours, or just wild flow. Contours are more efficient and costs are lower when slope of the land is too excessive for checks. Wild flow is used occasionally where the land is too rough for either checks or contours and water is plentiful and cheap. Sprinklers are finding wider use as more lands go into pasture. They are favored where the land is too rolling or the slope is too great for grading, where soils are light, and where water must be used economically because it is scarce and expensive. Many dairymen find their own special reasons for one method or another, even as Paul Teidemann decided in favor of sprinklers so he would not lose one season's use of the land.

Rotates Pastures Every Day

Rotation grazing is the most important factor in good pasture management, Teidemann says. Irrigated pastures should have about 30 days to recover because this allows the greatest growth of forage. Most dairy and livestock farmers still rotate every week or ten days with enough divisions of the pastures for the animals to make a complete round of the pastures in thirty days. Teidemann found rotating every day permitted his pastures to recover faster, the feed is fresh every day, and the cows give more milk.

Teidemann's plan for daily rotation provides for moving part of an electric fence every day. He lays off a section of pasture large enough to feed the herd for a week. Then he moves a section of fence enough each day to provide green forage for that day.

This quickly portable fence consists of one 12 gauge wire and stakes of 3/8 inch steel with clamp-on insulators. The wire is carried about on a home-made reel. Teidemann sets the rods 50 to 60 feet apart. Then he reels off the wire and fastens it to the insulators. In this way he can move the fence in fifteen minutes.

Teidemann's rotation plan also makes it easier to keep the animals off the ground when it is wet just after irrigation. He is not so restricted as to the time he can clip the weeds, or any other management operations. **THE END**

When Teidemann decided to rotate pasture grazing daily, he was faced with providing a quick method of moving his electric fence with a minimum of time and effort. He made a reel to take up the wire, move it, and reel it out again in a few minutes. Here he demonstrates its use.

LP-Gas for Tractors?

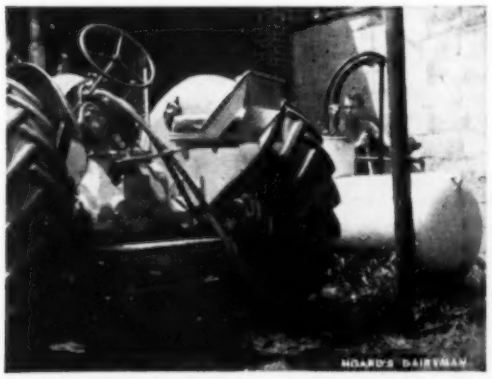
by Roger Yoerger

It's an excellent fuel . . . costs $300 to convert . . . repair costs are low . . . will be slight saving in oil.

IS BOTTLED gas cheaper than gasoline for use in my tractor? How does it compare with gasoline in power? Under what conditions can I expect to get the best results from LP-gas?

We've had a good many farmers asking us questions like this. They have read the advertisements or stories which have come out in the farm press that tell of it. They are interested in LP-gas (liquefied petroleum—propane seems best for Iowa) for their tractors.

To get answers to many of these questions required some research—we had to find out ourselves! So agricultural engineers at Iowa State College conducted tests in which they compared LP-gas with gasoline. Using the same engine with both fuels, they found which was the cheaper; they tried hot and cold manifolds; they checked costs when the engine was operating at half load and at full load. The story which follows, in large part, came from these tests.



Liquid fuel is pumped into tractor tanks from propane storage tank through large hose, while fuel vapor is allowed to return to storage tank through other hose.

If you were to ask us about LP-gas as tractor fuel, these would be our answers:

1. It's an excellent fuel.

2. Whether you should use it will depend on your particular conditions such as the amount you use in your tractor, whether you have a large storage tank (a 1000-gallon tank costs nearly $500) so that you can buy the fuel in bulk and whether you are near a bulk plant operator.

3. It costs around $300 to convert a tractor to use this fuel. Converting tractors that are nearly worn out won't pay. (Some of the new tractors are equipped for this fuel.)

4. Repairs and maintenance costs are likely to be less with LP-gas than with gasoline. It is clean-burning, leaving little carbon.

5. There will be a slight saving on oil with LP-gas.

6. Consider alternative uses for your money in the farm business.

You will find in graphs 1, 2, and 3 a report on some of our results.

These tests showed that there is definite advantage in having a cold manifold rather than the hot manifold which is used for gasoline. With a hot manifold and with the low compression ratio of 5.4, propane produced only about 90 per cent as much power as gasoline (first graph).

With a cold manifold, the fuel cost was 9 per cent less at full load and 15 per cent less at half load than with gasoline (graphs 2, 3). This saving came even though the compression hadn't been raised to the one favoring LP-gas. By raising the compression ratio from 5.4 to 8.0 (graph 1), the power output was 20 per cent larger for LP-gas.

Since there wasn't any detonation (knocking or pinging) at the 8.0 compression ratio, engineers think it may be possible to use even higher compression ratios without detonation.

Graphs 2 and 3 show that the LP-gas fuel saving was greatest when the tractor was operated at half load. Most farm tractors are seldom operated at full load much of the time.

The fuel savings which our tests show are mainly due to lower costs of the fuel and not to lesser amounts used. The prices we used were average Iowa costs—13 cents a gallon for the LP and 18 cents for gasoline.

In actual practice engines converted from gasoline to LP-gas use about 10 per cent more quantity per hour, but the cost is less.

One needs to remember that a gallon of propane weighs only 4.24 pounds (see table) as compared with 6.12 for gasoline. You get about 17 to 26 per cent fewer heat units in a gallon of LP-gas than in a gallon of gasoline.

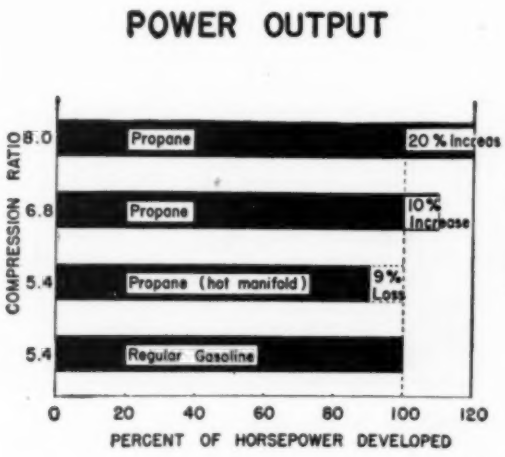
Important Tractor Fuel Properties

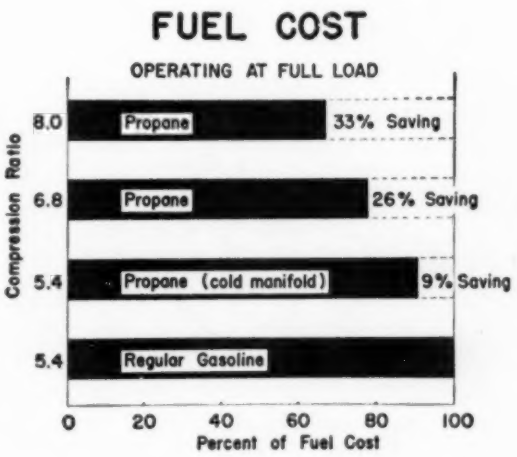
	Weight per gal.	Heat per gal. (Btu)	Cost/gal. cents (approx.)
Propane	4.24	91,600	13
Butane	4.80	102,500	16
Reg. gasoline	6.12	124,250	18
Tractor distillate	6.88	135,800	14

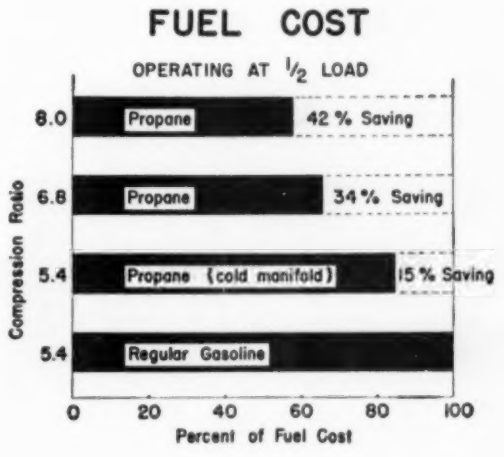
Carburetion Equipment

The carburetion equipment used when burning propane is very important. There are, in general, two types of systems: (1) vapor withdrawal and (2) liquid withdrawal.

With vapor withdrawal carburetion, the fuel is drawn off the top of the tank in vapor form. (This is the system used for most cooking installations.) Ordinary 20- or 100-pound bottles can be used with tractors. This usually isn't practical because the cost of LP in bottles is two to four times as great as in bulk. Also these bottles on a tractor may make it hard for the operator to see, and they may interfere with mounted implements. *(Turn to page 288)*







How Will You Handle Your Hay

Best bet is to put up some grass silage and rest as hay. First of five articles that will bring you the latest in haymaking.

by L. H. Hodges

THE first step in putting up forage is **planning.** If you **plan** your **work,** then **work** your **plan,** you can have two good crops of forage. Good planning must always answer what, where, when, why, and how. These questions must be answered by you as an individual farmer. This series of five articles is written to assist you in arriving at a sound decision.

We will have to admit that the weatherman is going to have a lot to say in how we put up our hay. Plenty of rain makes a big hay crop. It also makes it difficult to save that crop from damage. A major problem then is to beat the weatherman.

What kind of weather is he going to give us in June? We don't know. Looking back on 46 years, however, we might predict our chances of good haying weather. Under the supervision of L. A. Joss, U. S. Weather Bureau, the University of Wisconsin compiled weather data from 1905-1950. Based on a study of 3,864 days of haymaking weather, here is what they found:

1. If you consider 0.01 inch (a light shower) as rain, you have one chance in three that it will rain today. If it does not rain today, it's a 50-50 chance that it will rain tomorrow or the day following.

2. If you consider 0.1 inch (a moderate shower) as rain, you have one chance in five that it will rain today. If it does not rain today, there's one chance in three that it will rain tomorrow or the day following.

A rainfall of only 0.01 of an inch will certainly have a marked effect on field curing of hay but would not affect the making of grass silage.

It's an even bet it will rain . . .

It is evident from these data that, if your weather conditions are similar to those found in the Madison area of Wisconsin, at best you only have about a 50-50 chance of putting up your forage as field-cured hay without having it rained on.

Putting up the forage crop in the form of grass silage will overcome this disadvantage. You can put up grass silage when it is too wet to do any other field work. In one of the wettest seasons on record, a custom outfit putting up grass silage in Dane County, Wisconsin, was rained out completely on only one day out of 41 calendar days.

With the exception of quick dehydration at high temperatures, ensiling preserves the protein, vitamins, and other nutrients of forage better than any other method. So, grass silage offers the best **practical** method of preserving forage crops for the average farmer who uses the forage crop on his own farm, provided he plans early for its storage and handling.

If you choose to handle your crop as cured hay, the next question is whether it is to be field cured or to be partially cured in the field and then finished with some type of drying unit. This can be done either with a mow drier or on a limited scale with a wagon or batch drier. This problem of finishing partially cured hay with a drier will be covered more completely in another article.

How to speed up curing . . .

At present, there are two basic methods which could be used to shorten the time required for hay to cure in the swath or windrow. These methods are crushing, and flame searing. The flame treatment subjects the green plant to a hot flame for only a very short time. This flame will sear the plant, but cause no visible damage to it.

This treatment will sufficiently damage the thin outer layer of the plant to allow the moisture to move out of the plant more quickly so that it can be evaporated. This method is not presently available for use by farmers.

The hay crusher is a machine which causes the plants to pass between two large rollers soon after cutting and then lays it in the swath for drying. The function of the two rollers, which are held tightly together by adjustable spring pressure, is to crack open the stems of the hay plant, thus exposing more area to the air. This will tend to speed up the drying rate as it lays in the swath or windrow. Leaves will not be as dry and brittle; therefore, less leaf loss means more carotene can be harvested.

One machine pictured here is an experimental unit used at the University of Wisconsin for testing different roller designs, sizes, and speeds. At present, two commercial machines are available to farmers, and others are in the experimental stages of development.

The basic principle of crushing hay is not new but has not been widely practiced by farmers. Extensive tests, conducted over the past 23 years at 10 different experiment stations in the United States and Canada, indicate that a reduction of 25 per cent to 50 per cent in field drying time may be obtained under **favorable** drying conditions. Remember, however, that no known mechanical handling method exists to make field-cured hay under **unfavorable** weather conditions.

If your operation is such that you can justify the installation of drying equipment, and can combine this with the advantages of a crusher so as to play "both ends against the middle," so to speak, you have a much better chance of putting up your forage crop as cured hay.

Save more leaves in silage . . .

The main object of haymaking should be to retain the leaves and their green color. Alfalfa leaves contain about 70 per cent of the protein and minerals and 90 per cent of the carotene or provitamin A of the entire alfalfa plant. Morrison's "Feeds and Feeding" states that under best haying conditions in the Corn Belt "17 per cent of the leaves will be lost when making alfalfa hay." These losses range from 17 per cent to 40 per cent when making dry hay, but only 10 per cent to 20 per cent when making grass silage.

If you have decided to make grass silage, the next big question to be answered is whether to use a preservative, the wilting method, or put it up by the direct-cut method. Your decision at this point in your planning phase of harvesting your forage crop will have a direct bearing on, and be influenced by, the machinery to be used, method of storing and feeding, quality of silage desired, and losses or risks you are willing to accept. These and other questions will be analyzed in future articles on grass silage.

There seems to be some unsolved problems connected with both haymaking and putting up grass silage, yet each method has certain desirable features. It is not possible at the present for most farmers to put up all, or most, of the forage as silage. It, therefore, seems advisable for most farmers in the humid area to combine the two and put up some grass silage and some cured hay, perhaps putting up the first cutting as silage and the later cuttings as hay.

In many cases the first cutting may tend to be coarse and stemmy, whereas later cuttings usually have a higher percentage of leaves. In many areas the weather is much more favorable for putting up hay during the time of year that the later cuttings are ready.

When to cut . . .

Regardless of **what** is made out of your forage crop, the **when-to-cut** question is of utmost importance. The ideal time to cut alfalfa hay, from the standpoint of protein and butterfat yields, is shown in the following table.

We cannot emphasize too strongly that there

An experimental hay crusher used by University of Wisconsin to test different roller designs, sizes, and speeds.

One of the commercial "haymakers" (crusher) now on the market. Drying time can be reduced 25 to 50 per cent.

Another crusher machine called a hay "conditioner." The mower cuts a swath while crusher processes previous swath.

are other considerations which influence the time of cutting, especially the first crop, and they should not be passed over lightly. Two of these considerations are: first, maintenance of a healthy, vigorous, high productive stand; and, secondly, the control of certain insects, mainly the potato leafhopper.

Relation of Protein Content to Maturity of Alfalfa Hay

State of maturity when harvested	Yield of protein per acre	Yield of fat per acre
	Lbs.	Lbs.
Early bloom	1,427	404
One-half bloom	1,381	345
Full bloom	997	331

These two considerations tend to favor a later first cutting, whereas butterfat and protein yields favor an early cutting, so a farmer must then arrive at some suitable compromise. These considerations are affected somewhat by weather conditions so specific recommendations relative to time of cutting should be obtained from your county agricultural agent or agricultural college.

If your alfalfa is subject to winter injury, we advise you to cut at the full bloom stage. This gives the plant time to recover and get back on its feet. Food can be stored in its crown and roots to produce a good second crop.

Second cutting down 43 per cent . . .

We had a stand of alfalfa suffer winter injury at Madison in 1948. Part of the field was cut June 9 and the remainder July 1. The yields of these first cuttings were about equal. But when agronomists compared our second cuttings, the field cut June 9 yielded 43 per cent less hay and was about one-third weeds.

To get the most out of a late first cutting, you can put it up as grass silage. The second crop, of course, would be put up as well-cured hay.

A compromise solution for those farmers having relatively large acreages, or those having stands that are plowed under every few years in a rotation, is to start some first cuttings early and delay some fields for late cutting. In this way, these farmers will always have some fields of well-managed stands to fall back on in case of winter injury or leafhopper damage.

Speaking of leafhopper, let's not forget that they can do considerable damage to the second crop of alfalfa. There is no known way of predicting in advance when the leafhopper population will be large. It has been generally observed, however, that cool, wet springs seem to retard their development. They do not generally appear in great numbers when this combination of weather conditions exists. This should not be regarded, however, as a genuine measure of protection against the potato leafhopper.

How to control leafhoppers . . .

There are only two known methods of controlling this insect. These are proper management (late cutting), or use of insecticides, such as DDT, methoxychlor, or parathion. DDT cannot be used on alfalfa that is to be used as feed because of the very low tolerance of the residue allowed in milk by the federal Food and Drug Commission.

Methoxychlor and parathion are being recommended at the present time. Last year in central Wisconsin it cost about $1.50 to $2.00 per acre for one application of methoxychlor. Parathion applications cost from 75 cents to $1.00.

If the need arises for you to use these insecticides, consult your county agent or agricultural college entomologist for complete recommendations as to their application.

In general, methoxychlor can be applied with low pressure spray equipment as an emulsion so as to prevent the leafhopper from populating your alfalfa field. It is very effective and has a good lasting effect.

Parathion is an excellent "clean-up" insecticide. If you observe considerable "yellowing" of your second crop of alfalfa, caused by the leafhopper, then an application of parathion will rid your field of this insect. It is cheaper than methoxychlor, but does not have the lasting effectiveness; therefore, it is generally used as a "clean-up" insecticide rather than as one to prevent the insect from occurring.

In summary, then:

Cut at the early bloom stage when . . .

1. You desire top yield, quality, and the most milk per acre.
2. There is no winter injury.
3. You plan to control leafhoppers with insecticides.

Cut at the full bloom stage when . . .

1. The crop has suffered winter injury.
2. You practice late cutting to control leafhoppers.

At this stage of your planning for better forage in 1952, you should have decided on what to make out of your crop so that the weatherman doesn't get most of it, and when to cut it to give you the desired results. How to handle this forage with modern machinery will be covered in the next article in this series.

THE END

Second crop, winter-injured alfalfa cut July 1 (left) and June 9 (right). Early cutting resulted in 43 per cent loss.

When to cut. If no winter injury and you control leafhoppers, cut in early bloom; otherwise, at full bloom.

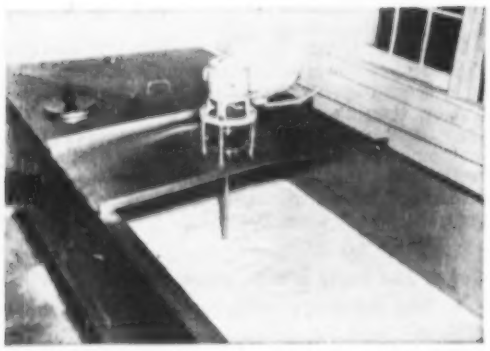
You can beat the weather with grass silage. This method preserves more feed than any of the other common methods.

Bulk Handling....

Is For The Family Farm, Too

There are no more milk cans on these farms. New system results in better tests, milk, lower hauling charges.

by A. C. Woodruff



Agitator is used in this 400-gallon tank. Agitator and compressor shut off when milk reaches desired temperature.

This tank will transport up to 1,800 gallons. H. C. King is backing truck up to a milk house for the daily pickup.

Receiving platform is in the farmer's milk house. Here the driver reads a steel rule which indicates milk weight.

MOST dairymen have heard about or have read about the new bulk system of handling milk from the farm to the city dairy. (Hoard's Dairyman, November 25, 1950.) Many dairymen when approached by either the dairy manager, fieldman, or an equipment company representative are somewhat surprised that the bulk system is being considered in their particular area.

However, since the great number of installations all over the United States on small farms have proven so overwhelmingly successful, particularly from the producer's standpoint, we can expect this revolutionary method of handling milk to continue to grow.

Do not be surprised if you are asked by your local dairy or fieldman to consider this bulk system for handling your own milk.

The bulk method of handling milk from farm to dairy received its start in California in 1938. Since the majority of the farms in California are extremely large in comparison to the dairy farms in the East, the bulk system was very adaptable.

The first method used in the California area was to dump the milk from the milking pails into a small dump tank. The milk was then pumped over a surface cooler and into an insulated storage tank.

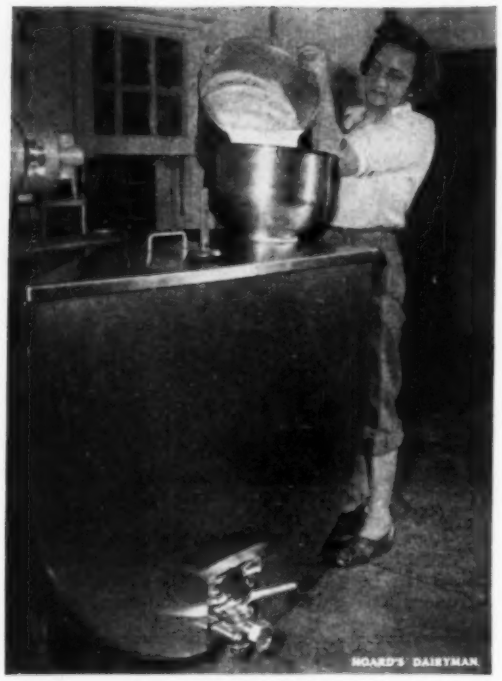
These storage tanks were of large sizes, 500, 1,000, 1,500, 2,000, and even some 3,000 gallon tanks being used. This milk was then picked up in tank trucks the same as we transfer milk from receiving station to country plant today. This method of handling milk in bulk, of course, was not practical on the smaller farms in many sections of the country.

Milk emptied directly into tank . . .

In 1944 the idea was conceived of using refrigerated tanks in a small design and straining the milk directly into the refrigerated tank where it would be cooled without the necessity of pumping over surface coolers. This greatly simplified the California plan and the method has proven very satisfactory and acceptable to the average size milk producer.

The first installation of the bulk system in the eastern section of the country was in Connecticut and in South Carolina in 1948 and 1949. These installations received a favorable reception, right from the start, both from producers and dairies.

Since the Columbia installation in 1949, several additional bulk routes have been started in other areas. Green Valley Farms route at Haddonfield, N. J., is perhaps one of the most unique in the country. There milk is picked up from small, medium, and large producers. By large producer, we mean a producer shipping about 25 cans. Tank sizes on the Green Valley Farms' route vary from 60 to 300 gallons.



Milk is poured directly into the 200-gallon cooling and storage tank on the Russell J. Prickett farm, New Jersey.

At Keota, Iowa, a route was started recently on every other day pickup basis. Two routes have recently been started in the Frederick, Md., area, the milk going to Lucerne Milk Company, Washington, D. C. Tank trucks and tanks are being fabricated for four additional routes in the same general area with bulk pickup scheduled to start about February 1st.

Can drawoff methods used with tanks . . .

In addition to the bulk routes already in operation, there are a great number of individual tanks installed on farms all over the United States where bulk routes are not in operation. On these farms the tanks are installed on high legs for can drawoff, or a pump is used to pump the milk into cans for regular can truck pickup.

Many producers, finding it necessary to make changes in their milk cooling system, either due to obsolescence or expansion, are considering the use of the bulk tank. When bulk routes are established later, they will be in a position to have their milk picked up in bulk and will not have to consider disposing of good can cooling equipment. An example of this arrangement is the installation at Crocker Bros. Farm, Ohio.

Selecting tank size . . .

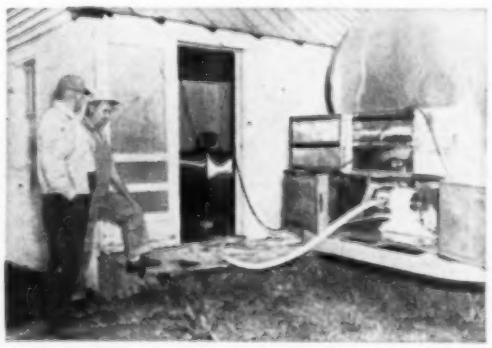
A number of factors are to be considered in setting up a bulk route. A most important consideration is the size of the tank. It is easy to understand that the tank must be large enough to take care of peak production; also future increased production should be given careful thought. Since the stainless steel tanks will last from 20 to 30 years, the size selected should be large enough to meet any future needs.

Other factors to consider are the possibility of every other day pickup and unusual road conditions where it might be desirable to have the tank hold at least three milkings.

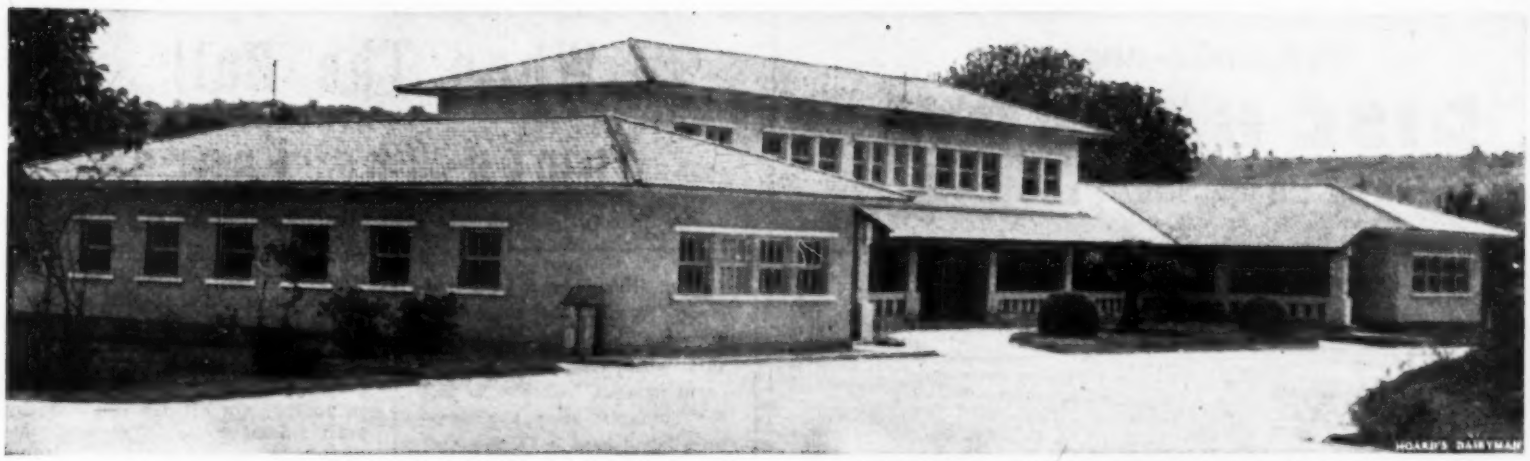
When the tank is installed, *(Turn to page 294)*

Milk samples are also taken in the milk house to check for sediment and bacteria count. This is a 100-gallon tank.

Tank truck driver, James Dorsey, connects Tygon pump-out line to tank outlet valve to transfer day's production.



Here the pump, at rear of tank truck, is transferring milk from bulk tank to truck tanker or "mobile receiving room."



This building is available for scientists to begin work. Others will be built.

The Americas join hands to build a

Foot And Mouth Disease Center

by Benjamin D. Blood and Ramon Rodriguez

Brazil is the site of long sought research center. Diagnosis, field work, and training are included.

THE American republics, all of them involved or seriously threatened with foot and mouth disease, have joined together to establish a Pan-American Foot and Mouth Disease Center. It will be the first center in the Americas devoted to work on animal disease on a continent-wide scale.

Foot and mouth disease (in Spanish, fiebre aftosa) is one of the most feared infections of the livestock industry. Caused by a filterable virus, it is extremely contagious with an ability to spread that is comparable to that of smallpox or influenza in human beings. The death rate varies from 5% to as high as 50%.

Yet, the disease is feared not only because of the animal fatalities it causes but also because it leaves its victims in an impoverished and unproductive condition. The foot lesions cause the animal to become lame, whereas the lesions in the mouth make eating difficult; in addition, the udders of dairy cows are often affected. The resulting loss in meat and milk, both so important to human nutrition, is incalculable.

Following receipt late in 1950 of a request from the organization of American states that it develop a project against foot and mouth disease, the Pan-American Sanitary Bureau presented plans for the establishment of the Aftosa Center. These plans were approved and the project is being financed as a part of the technical assistance program of the organization of American states. Although the Pan-American Sanitary Bureau is in technical and administrative charge of the project, it is co-sponsored by the Inter-American Institute of Agricultural Sciences.

Located north of Rio de Janeiro . . .

Of the several offers to provide headquarters for the Center, the offer of Brazil was accepted as being the best suited and most appropriate site. It consists of 92 hectares (227 acres) of land located at São Bento, some 25 kilometers (15½ miles) northwest of the city of Rio de Janeiro. Already present on the site are buildings which will provide laboratories and office space for immediate, though limited, operations.

The government of Brazil has agreed to build the permanent facilities around the existing units. Blueprints provide for a sizeable installation, including facilities for stabling 200 head of laboratory cattle under conditions of strict isolation. Provision is also made to keep incoming cattle under strict quarantine, so that healthy animals are available to meet the requirements of the laboratory work.

In addition to the land and structures, the host country will furnish local labor, services, and public utilities. The international funds will cover the cost of specialized scientific equipment and pay for the employment of the international personnel, including ten technical and three administrative staff members.

Four types of service . . .

The Center will be capable of furnishing four types of services: diagnostic, field consultation, training, and research. These services will be available, upon request, to each of the cooperating governments.

Diagnosis. Proper diagnosis is the keystone to any program for the control of foot and mouth disease, whether that program be aimed at preventing extension of the disease into new territory or at fighting it in affected areas.

The diagnostic service available at the Center will be especially valuable to those countries which do not now have facilities for differentiating between foot and mouth disease and other vesicular diseases or between the various types and strains of aftosa virus itself.

Field Consultation. This type of service is provided on all phases of preventing and controlling foot and mouth disease, including such matters as administrative and operational procedures for the application of effective quarantine, whether local, national, or international; administration of control campaigns; vaccine production and immunization techniques; and epizootiological investigations of the nature and extent of the disease in a given area.

Training. A very important function of the Center will be to receive professionals from all countries in the Americas who may there receive specialized training in the diagnosis and control of foot and mouth disease. The periodic training courses will utilize modern teaching methods in the laboratories, in the classrooms, and in the field.

It is probable that some of the most promising trainees will be granted research fellowships for more advanced specialized training at the Center.

Research. Experts in food and mouth disease would be the first to admit that much additional research needs to be undertaken. The Center has been designed, from the standpoint of both physical facilities and personnel, to undertake research activities. This type of operation can be carried on simultaneously with the other functions and, in fact, is expected to form a basis for constantly improving the other three basic services offered.

The permanent staff of the Center will provide an excellent nucleus for research work. The number of special research projects that can be handled by this group will, however, be somewhat limited. Yet there is no reason why research projects may not be financed by funds and personnel made available to the Center from outside sources, whether institutional or private.

Regardless of the source of funds, all research will be under the supervision of the director of the Center, and results of research will be made available to all interested agencies or individuals.

Limitations of the center . . .

Although the Pan-American Foot and Mouth Disease Center is expected to be of great assistance in the fight to control (and some day, eradicate) foot and mouth disease in the Americas, it is far from being the complete answer to the problem. In reality the prevention, control, and elimination of this disease is, and must remain, a responsibility of the country or territory concerned. For example, the Center must not be considered to be a source of vaccine or of direct economic aid.

THE END

OUTBREAK IN CANADA

Late last month the United States government closed the border to all imports of fresh meat and live meat animals from Canada following an outbreak of foot and mouth disease in Southern Saskatchewan. At the time of this writing diseased animals had been reported on 22 farms.

The Royal Canadian Mounted Police have slaughtered well over 1,000 animals, including cattle, hogs, and sheep, in an effort to halt the spread of this dreaded infection. Rigid quarantine regulations have been enforced to confine the disease to the area of Regina, and officials report there is a good chance of wiping out the disease on the spot.

The Canadian government is assuming full responsibility for control of the disease, and farmers will be paid for livestock destroyed and for buildings or equipment taken over by the government in its effort to stop spread of the disease.

United States inspectors are tracking down all live animals brought into this country from Canada during the past few months so they may be watched closely for possible infection.

hydraulic-angled

DISC HARROW

makes deep, level rootbeds

This A-C 11-B disc harrow is available with hydraulically or mechanically angled gangs. Four sizes — 5½ ft., 6 ft., 7 ft., and 8 ft. For those who prefer single-action disc harrows, the No. 15 (not shown) is available in 10-, 12-, and 15-foot sizes.

Here's a hefty disc harrow that levels as it pulverizes . . . makes deep, smooth rootbeds for your crops.

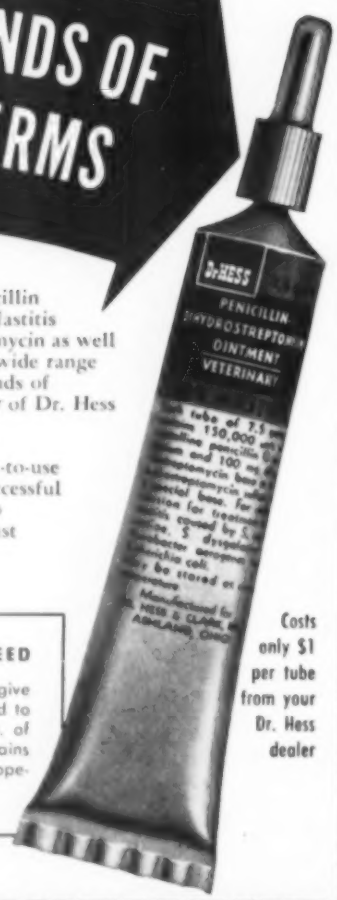
Each gang works at the proper depth — independent of the others — through flexible connections. Better work is assured in uneven soils. Cuts stalks better because it has more weight per disc blade.

Notice how this disc turns . . . safely! The ingenious "criss-cross" linkage leads each gang just right to disc out the ends . . . levelly, and without crowding the gangs or gouging the soil.

Ask your Allis-Chalmers dealer to demonstrate this easier, better kind of discing.

ALLIS-CHALMERS
TRACTOR DIVISION • MILWAUKEE 1, U. S. A.

KILLS FOUR KINDS OF MASTITIS GERMS



Some mastitis germs are not killed by penicillin alone; that's why each tube of Dr. Hess Mastitis Ointment contains 100 milligrams of streptomycin as well as 150,000 units of penicillin. The result—a wide range treatment that kills not just one but *four* kinds of mastitis germs. In addition, the high potency of Dr. Hess Mastitis Ointment prevents germs from becoming resistant to treatment.

One tube of Mastitis Ointment—with easy-to-use applicator tip—is usually sufficient for the successful treatment of one quarter of the udder. Keep *several* tubes handy—and be prepared for fast action at the first sign of udder trouble.

Costs only $1 per tube from your Dr. Hess dealer

GET MORE MILK PER POUND OF FEED

Cows on the Dr. Hess Research Farm always give more milk when Dr. Hess Stock Tonic is added to the ration . . . about ¼ lb. more milk per lb. of grain fed. Try Stock Tonic in your herd. It contains essential minerals and tonics that whet the appetite, aid digestion, turn feed to better use.

DR. HESS
MASTITIS OINTMENT

DR. HESS & CLARK, INC., ASHLAND, OHIO • SCIENTIFIC FARM-ACEUTICALS SINCE 1893

When The Bull Jumps The Fence

A question from a Louisiana reader recalls the celebrated Supreme Court decision of 1911, which held that the owner of a scrub bull had to pay for damages after the "low-brow" had bred a "high-brow" registered heifer.

HOARD'S DAIRYMAN:—*For four years I have been, at every opportunity, fighting a lone battle for adoption of a simple, special bull law which, I understand, a number of states have had for many years. This law simply says, in effect, that any bull reaching service age being both dangerous, a possible carrier of venereal disease, and making the known breeding of calves in any given area a dangerous guess, said bull must be kept in a foolproof enclosure of standard specifications.*

This has always been a terrible handicap in some sections of the state to those spending effort and money to breed good dairy cattle and now, since we have a central or state-wide artificial breeding program going full blast for four years, it is about the greatest spoiler of any herd owner's chances to breed artificially.

As an example: Within a radius of two miles of and including my own herd there are some 200 dairy cows whose owners would like to breed artificially but cannot because one fellow buys and turns loose to fatten thin, scrub, or half-breed bulls coming from anywhere and everywhere. These people are deprived of opportunity to have a calf worth raising, no control of breeding their cows and no breeding records.

With the state spending $150,000 yearly for artificially breeding of dairy cows, how ridiculous it is for me (I am inseminator here) to drive 20 miles through heavy traffic to breed one cow, with some scrub bull breeding my own cows and those within a mile of my headquarters while I'm gone.

I suggested this law when we started four years ago while legislators were freshly aware of new program but could get no backing.

I am now a member of the State Board of Directors of the Louisiana Artificial Breeding Association, Inc., and brought this subject up at my first meeting in August last with no argument for or against the law. I will continue to fight for this most sensible and just law until I am eased out or thrown out of any position where I might argue this cause.

If you can be of help to me, by securing a copy of this bull law, I would be very appreciative of same.
Louisiana. F. M. SHALL.

It is always hazardous to give any type of legal advice because of varying state laws and local circumstances. We quote below, however, Chapter 172-01 of Wisconsin Statutes 1949:

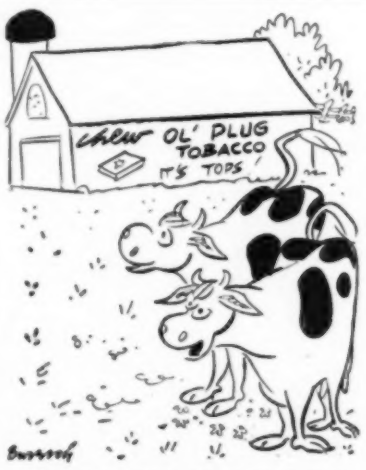
"172-01—*Animals not to run at large.* No stallion over one year old, nor bull over six months old, nor boar, nor ram, nor billy goat over four months old shall run at large; and if the owner or keeper shall, for any reason, suffer any such animals so to do he shall forfeit $5.00 to the person picking it up and be liable in addition for all damages done by such animal while so at large, although he escapes without the fault of such owner or keeper; and the construction of any fence enumerated in Section 90.02 shall not relieve such owner or keeper from liability for any damage committed by an animal of the enumerated class upon the enclosed premises of an adjoining owner."

The question you immediately have in mind, after reading the foregoing paragraph, is what constitutes damages? According to J. H. Beuscher, in his book, "Farm Law in Wisconsin," the owner of the trespassing animal is held liable for (1) communication of disease to landowner's cows; (2) misalliance of scrub bull and full-bred heifer; (3) personal injuries in trying to put the trespassing animal out.

In cases in Wisconsin, the owner of the animal was held not liable for damages in the following cases: killing of young goat by a mule; cow attacking a woman; personal injuries sustained in falling into a cistern damaged by a cow.

Perhaps one of the most celebrated cases on record is that of Koplin vs. Quade, 145 Wis. 454. In this case the defendant's scrub bull trespassed upon the property of the plaintiff and bred a registered heifer. The plaintiff brought suit for damages and County Judge Charles B. Rogers allowed damages against the owner of the scrub bull. The case was subsequently appealed to the Wisconsin Supreme Court. Following is, in part, the judgment handed down from that Supreme Court by Judge Barnes in March of 1911:

"*Barnes, J.* On September 14, 1907, the plaintiff was the owner of a thoroughbred Holstein-Friesian heifer which was born on January 8, 1906, and had been thereafter duly christened 'Martha Pietertje Pauline.' The name is neither euphonious nor musical, but there isn't much in a name anyway. Shakes-



"I've wondered about that for years—but I don't think it would taste any better than clover."

peare (W.), Romeo and Juliet, act, II, scene 2.

"Notwithstanding any handicap she may have had in the way of a cognomen, Martha Pietertje Pauline was a genuine 'highbrow,' having a pedigree as long and at least as well authenticated as that of the ordinary scion of effete European nobility who breaks into this land of democracy and equality and offers his title to the highest bidder at the matrimonial bargain counter.

"The defendant was the owner of a bull about one year old, lowly born and nameless as far as the record discloses. This plebian, having aspirations beyond his humble station in life, wandered beyond the confines of his own pastures and sought the society of the adolescent and unsophisticated Martha, contrary to the provisions of sec. 1482, Stats. (1898), as amended by ch. 14, Laws of 1903. As a result of this somewhat morganatic misalliance a calf was born July 5, 1908.

"Plaintiff brought this action to recover resulting damages and secured a verdict for $75, upon which judgment was entered, and defendant appeals therefrom.

"The plaintiff offered testimony tending to show that he kept and intended to keep Martha for breeding purposes and for the milk which she might produce, and not for sale. It also showed that plaintiff was the owner of a blue-blooded bull of the 'Holstein-Friesian' variety, to which he intended to breed Martha some three months later than the date of the unfortunate occurrence related.

"There was evidence tending to show that a thoroughbred calf would be worth all the way from $22.50 to $150, depending on its sex, markings, and other characteristics. Its sinister birth disqualified the hybrid calf born from becoming a candidate for pink ribbons at county fairs, and it was sold to a Chicago butcher for $7 and was probably served up as pressed chicken to the epicures in some Chicago boarding house.

"The true measure of damages was the difference between the value of the heifer to the plaintiff before and after the trespass, in view of the uses which the plaintiff intended to make of the heifer. Such a rule furnishes compensation, and this is what the law aims at.

"There was no direct question asked of any witness as to what such difference would be, but the line of examination pursued elicited at least some if not all of the items or elements of damages that a witness would consider in answering such a question if it were asked. One of those elements would be the difference between the value of the calf dropped and the value of a calf from the heifer if bred to a registered Holstein-Friesian bull.

"It is apparent, therefore, that there was some competent evidence before the jury from which it might properly return a verdict for substantial damages, and that therefore the motion to direct a verdict was properly denied. Indeed, this result might well follow if the plaintiff were entitled to recover nominal damages only.

"By the Court. — Judgment affirmed."

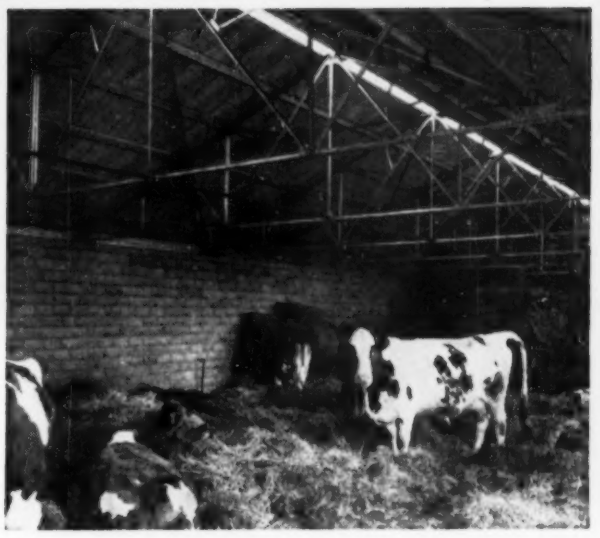
A dentist who had heard the whereabouts of a patient who had skipped, leaving the bill unpaid, sent him this note:

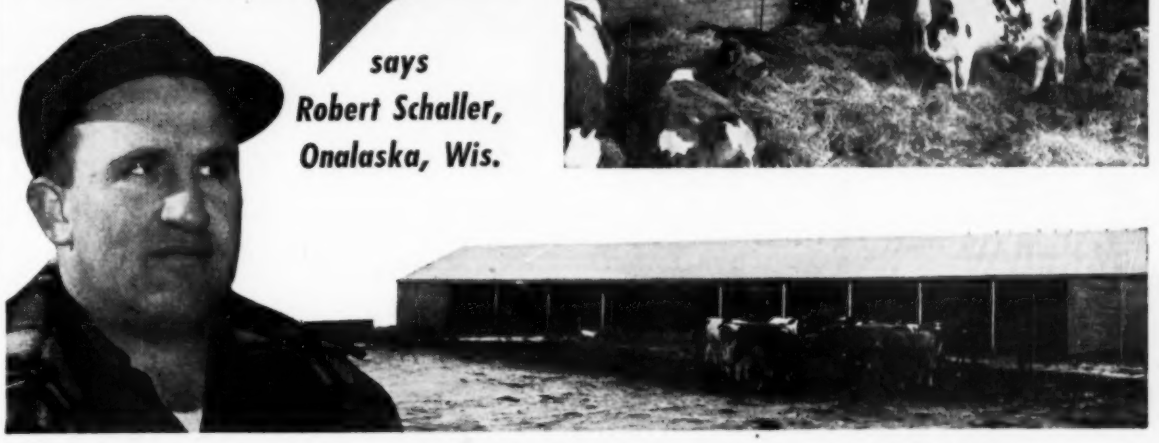
"Will you please send me the amount of your bill and oblige."

With no unnecessary delay came this answer: "The amount is $14.00. Respectfully yours, etc."

"Steel buildings are just the thing for cows"

says Robert Schaller, Onalaska, Wis.





Mr. Schaller wrote us a letter about his new steel-roofed dairy barn. Here's what he said:

"We put up a 42 x 144 steel barn in the fall of 1950 and it's completely satisfactory in every way.

"The barn was built to accommodate a 100 cow milking herd to be used for sleeping quarters only. At the present time we have about 65 head.

"Steel is good and strong so it makes an ideal roof framing material. Ours is all-welded construction. As you can see from the pictures, the entire roof span of 42 feet doesn't need a single support column. The cows can move around freely and you can drive anywhere you like with a manure loader or spreader.

"We get some bad storms around here but I'm sure that no matter how bad they are the roofing sheets will stay on good and tight. The sheets are strong and stiff and they don't work loose around the holes. A hole was drilled through each sheet into the steel roofing member, then the sheets were pulled down tight with self-tapping cap screws. There's a steel-lead washer under each screw. The steel furnishes strength and the lead scrunches down into the hole and as a result we've never had any leaks that I've noticed.

"Steel buildings are just the thing for cows because they stay tight and keep out wind and rain. We went through the rugged winter of '50-'51 without a single sick cow."

Ask any farmer who has a steel building and he'll tell you that *you get more for your money when you build with steel.*

SEND THE COUPON FOR FURTHER INFORMATION

Agricultural Extension Bureau
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Room 2801X, 525 William Penn Place
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Please send me free literature about steel farm buildings. Building will be used for.....

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Approximate size or capacity.....
Send information to:

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Address.....

County.....State.....

United States Steel Company is a steel producer, not a steel fabricator. Your request, therefore, will be sent to building manufacturers who fabricate steel buildings for farm use.

U·S·S Galvanized Steel for Farm Buildings

You get more for your money when you build with Steel

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AMERICAN STEEL & WIRE DIVISION, CLEVELAND · COLUMBIA-GENEVA STEEL DIVISION, SAN FRANCISCO

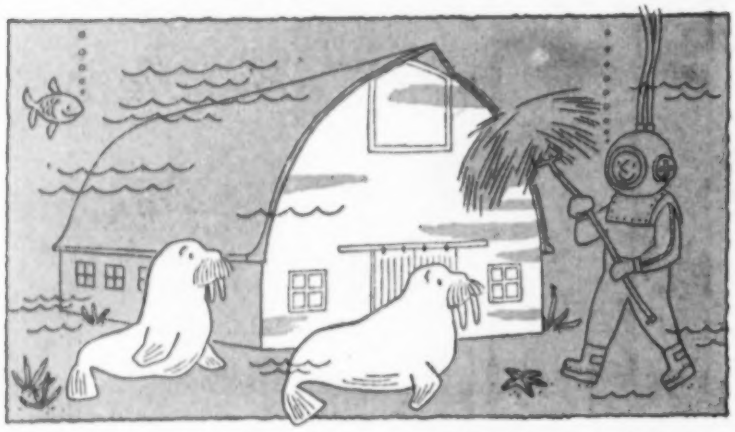
TENNESSEE COAL & IRON DIVISION, FAIRFIELD, ALA. · UNITED STATES STEEL EXPORT COMPANY, NEW YORK

USS

2-649-B

UNITED STATES STEEL

What! Barns for Sea Cows?



● Chances are you'll never add sea cows to your herd, but remember . . . a single dairy cow gives off over a gallon of moisture as vapor every day. That's why it's good to know Rilco uses waterproof resorcinol glue in the precision manufacture of barn and utility rafters. Even when submerged under water this glue remains strong and waterproof.

And Rilco gives you this important quality feature at *no increase in price!* Look for "Exterior" and "Rilco" marked on every rafter. You'll then be certain of getting the finest Douglas Fir permanently bonded with *waterproof* glue into an engineered one-piece structural member.

There's a Rilco rafter for every type and size farm building. Get money-saving details from your lumber dealer or write for free literature.

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ONLY GENUINE RILCO RAFTERS BEAR THIS TRADEMARK. YOUR ASSURANCE OF A DEPENDABLE ENGINEERED PRODUCT
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If your soil is properly mineralized you can be assured that your cattle are getting the essential minerals in their daily diet—Minerals are just as essential to the health and productiveness of your cattle as they are to human beings—they belong in the soil. Mineralized soil produces lustrous green vitamin rich grasses and your cattle receive these essential minerals when they feed. They'll feed more—be healthier and more productive if they are feeding on grasses grown from soil containing the proper minerals. ES-MIN-EL contains these essential mineral elements: Copper, Iron, Manganese, Zinc, Boron and Magnesium. You will note the difference when ES-MIN-EL is applied to your pastures. Put them back where they belong—in the soil!!

ES-MIN-EL
Essential Mineral Elements
TVA
SPRAY or DUST

ES-MIN-EL is now available in spray or dust form for direct application to the plant where the soil was not properly mineralized. Spray or dust ES MIN-EL is a neutral form of Copper, Manganese and Zinc.

REQUEST
that your local fertilizer dealer furnish you a completely mineralized fertilizer containing the essential mineral elements!

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Send card or letter to Tennessee Corp., Grant Building, Atlanta, Georgia or Lockland, Ohio.

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TENNESSEE CORPORATION
Atlanta, Georgia Lockland, Ohio

The HOARD'S DAIRYMAN ROUND TABLE

(Continued from page 273)

Kingston: Not over 6 to 8 months after first service. Our breeding rate is 1.6 to 1.8 services per conception.

Meyer: We prefer not to keep a slow breeder. If she has a bad breeding history, we ship her. Normally our heifers are bred just once, occasionally two or three times.

Bowling: Depends on value of heifer. On virgin heifers, our conception rate is less than 1.5 services per conception.

Carr: A long time . . . until they are known to be a shy breeder. We breed our first calf heifers from one to twelve times.

Hitz: We will probably experiment with her to learn more about sterility for future benefit. We rarely breed first-calf heifers more than once per conception.

● WHAT IS YOUR GRAIN MIXTURE FOR THESE HEIFERS? DO YOU THINK HEAVY GRAIN FEEDING IS CONNECTED WITH SHY BREEDERS?

Astroth: We don't always feed grain when pasture is heavy. When fed, it is a 14% protein ration, corn and oats plus soybean and linseed meal. Heavy grain feeding could be connected with shy breeding but our heifers seldom get too fat.

Friederich: Our grain mixture is listed earlier. Believe over-conditioning can cause considerable breeding troubles in heifers.

Weiler: No grain is fed but hay is provided even when on good pasture. We have never fed heifers grain that are of breeding age.

Crim: We don't feed grain to heifers when on good pasture. Otherwise the grain mixture consists of 5 lbs. per day of a mixture containing oats, bran, soybean meal, and barley. Think overfeeding of grain can cause breeding troubles.

Kingston: When fed grain, the mixture consists of ground oats primarily with a little bran and protein supplement added. Heavy grain feeding is very definitely connected with shy breeding in heifers.

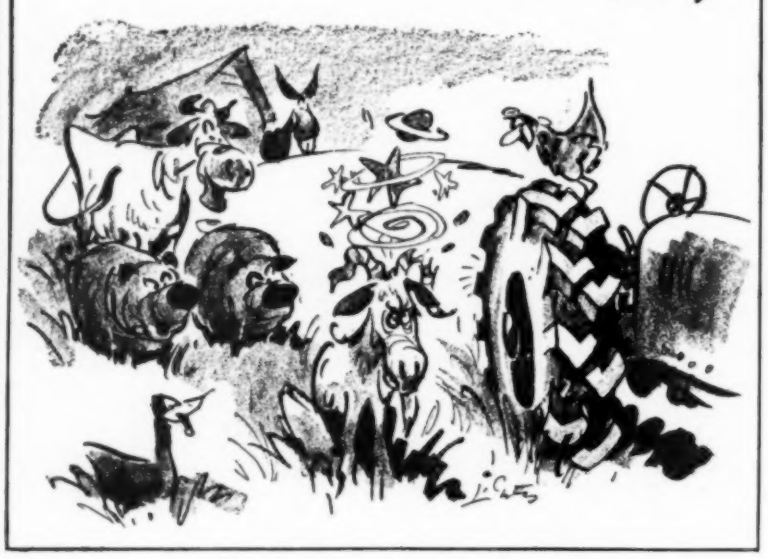
Meyer: We feed no grain to heifers after 12 months of age until just before freshening. For 6 weeks before freshening the heifers run into the milking parlor and get the regular dry cow ration of oats and bran. This gets them in good condition and lets them become acquainted with the milking routine. Think heavy grain feeding is connected with shy breeding.

Bowling: Heifers of breeding age never receive grain on pasture and get limited amounts of grain with winter roughage. If roughage and grass silage (which we use) is of good quality, no grain is usually necessary unless the heifers go into winter quarters in thin condition. If required, about 2 or 3 pounds of a low protein, commercial, dairy feed is used. Heavy grain feeding could be connected with shy breeding. We prefer to do our heavier grain feeding during the 2 or 3 months just previous to calving.

Carr: We normally feed 3 to 5 lbs. of oats and corn. If our pasture were tame instead of wild, we might not feed grain. Believe it's only a theory that heavy grain feeding is connected with shy breeding, but it seems to be contrary to nature.

Hitz: The grain mixture consists of 1 part dry beet pulp, 3 parts ground oats, 1 part corn and cob meal, and one-half part linseed oil meal. It's very possible that heavy grain feeding is connected with shy breeding.

CORN CENTER DOIN'S by L. Cheley



"He claimed he was the toughest thing in the barnyard 'til he ran up against that BFG Power-Curve tire."

When you use Power-Curve tires on your own tractor, you'll see how tough these B. F. Goodrich tires really are. Power-Curve tires have big, husky cleats that bite into the soil like a spade, give full shoulder-to-shoulder traction. Every turn of the wheel counts because Power-Curve cleats hold firm, reduce slippage. You get full power out of your tractor and save money on your fuel bills. Rugged Power-Curve cleats are evenly spaced so dirt flows down open channels. Power-Curve tires always come up clean with each cleat free to dig in and pull. And they wear longer because there's more rubber in the tread. Pick your toughest tractor work and hand it to Power-Curve tires — made by B. F. Goodrich, First in Rubber.

An advertisement of The B. F. Goodrich Company, Akron, Ohio

Guaranteed Wages...

plus a bonus or share of the net profits

by I. F. Hall

MANY farmers give their hired help a bonus or share of the net income in addition to their monthly wages. The basis of payment varies, depending on the type of farming and community.

Most any plan of giving extra money to the hired man for accomplishing unusual results proves beneficial to both the hired man and the farm owner. The hired man is encouraged to do a better job than he would do otherwise. The amount of extra money he will receive depends upon the results obtained. The farm owner can afford to divide with his help when greater than usual production has increased his income.

Even though there is no one plan or agreement that will fit all farms, there are certain points to be considered for any situation.

Points to Consider

1. The hired man should receive the going monthly wage plus the bonus or a percentage of the net income. It is usually better to give a percentage of gross monthly income than to wait until the end of the year to compute the net income. A bonus can be paid on either production or gross income above a certain amount set as a standard.

2. The size of the bonus or share of the income should depend upon the size of the business, type of farming, the different enterprises, ability of the hired man, and the number of years he has been on the farm. The size of the bonus should increase as years increase.

3. The hired man and his family should have as comfortable a place to live as possible. Many have central heating plant, bathroom, electricity, and other modern conveniences in the house.

4. The agreement should be written, giving in detail what the hired man is expected to receive when certain accomplishments are fullfilled.

5. When there is a combination of several enterprises on the farm such as dairy, hogs, poultry, or cash crops, it is best to give a small bonus on each enterprise. When there is more than one hired man, different enterprises can be assigned to different men and a bonus set up for certain results.

6. Whatever bonus is decided upon above a certain production, it is very important that the standard used is likely to be exceeded when efficient methods and practices are followed.

Some Bonus Suggestions

Dairy Enterprise—

- Twenty-five to 50 cents per 100 pounds of milk above a certain production monthly. The standard used will depend upon number of cows milked, time of year, and breed.
- One to three per cent of the monthly milk check.
- Two to five dollars for each calf when one month old.

Beef Cattle—

- Five to ten cents per pound on gains above a certain standard.
- One to three per cent of the gross sales.

Hog Enterprise—

- Five to ten dollars for each sow that weans seven or more pigs.
- Fifty cents to one dollar for each pig weaned over a certain number, depending on number of sows.
- Two to five per cent of hog income at each sale.

Poultry Enterprise—

- Five to ten cents per dozen on all eggs sold above a certain amount per hen or for the month.
- Two to five per cent of all egg sales.

Sheep Enterprise—

- Two to five dollars for each lamb saved above one per ewe.
- Two to five per cent of all lamb sales.

Crop Production—

- Five cents per bushel on production above a certain yield per acre or on a certain field.

Farm Laborer as Farm Operator

There are some farm owners who furnish everything except the labor to operate the farm. They employ a hired man to furnish all the labor and receive a share of the net income at the end of the year.

Owner's Contribution—

The owner agrees to furnish all land and buildings, all livestock, equipment, machinery, feeds, and other supplies.

To pay all taxes, insurance, and all crop and livestock expenses, except ordinary labor.

To have full charge of all income from the farm; and shall be responsible for paying all farm expenses except hiring additional labor.

To pay the operator a monthly wage of $—— during the term of this agreement. This payment shall be considered an advance to the operator as compensation due him at the end of the year.

Operator's Contribution—

The operator shall furnish all the labor necessary to operate the farm. Other provisions should be made for special crops and some types of machine hire.

The operator agrees to all the stipulations in an ordinary farm lease between landlord and tenant in operating the farm.

Payment to Operator—

The total yearly payment to the operator shall amount to one-third of the net farm income. Inventory changes in the numbers and value of all personal property shall be used in determining the net income. This will include all livestock, feed, fertilizer, seed, machinery, and other farm supplies. It will not include land or improvement and buildings.

All expenses of operating the farm shall be included as common farm expenses, except the following: taxes, insurance, and depreciation on real estate and buildings; materials used for repairing buildings and fences; interest paid on mortgages; also all labor whether hired by the operator or the owner for farm work.

The net farm income shall be determined by adding the ending inventory to all income and subtracting therefrom the sum of the beginning inventory plus the farm operating expenses.

If it shall be found at the end of the year that the operator's share is less than the total cash wages paid him during the year, no refund need be made.

Put Up Top Hay

...for extra Meat, Milk, Money!

DEARBORN Rear-Attached MOWER "Clips Hours"—as Well as Crops

Here's proved help, to enable you to harvest your hay crops at peak feed or market value. The big capacity Dearborn Rear-Attached Mower can be attached to the Ford Tractor in only 8 minutes. Its quiet operation is evidence of fine design and quality construction—to speed cutting of heavy hay crops (or tough pasture weeds). Cutter bar lifts and lowers with Ford Tractor Hydraulic Touch Control. Choose 6 or 7 foot cut.

DEARBORN Side Delivery RAKE *Gets Sun and Wind to Help!*

The Dearborn Heavy Duty Side Delivery Rake makes fluffy, easy-to-pick-up windrows—with gentle pushing action (instead of whipping!) by its proper raking angle and the floating ground-driven reel. Thus leaf shattering is greatly reduced—for this action tucks leaves inside the windrow while inverting stems to get fast curing cooperation from sun and wind. Has 8-foot raking width.

Say "WHEN" to Your Ford Tractor dealer...

to schedule your demonstration of the Ford Tractor and these or other Dearborn Implements, that can mean lots to you in '52 and from then on!

Ford TRACTOR

DEARBORN MOTORS CORPORATION • Birmingham, Michigan

National Marketing Organization for the Ford Tractor and Dearborn Farm Equipment

Ford Farming MEANS BETTER WORK ...MORE PRODUCTION

EDITORIAL COMMENT

FOOT AND MOUTH DISEASE IN CANADA

AS REPORTED on page 279, foot and mouth disease has broken out in Canada. At the time of this writing there are 1,015 cattle, 193 hogs, and 140 sheep in the affected area around Regina. The site of the infection is about 100 miles north of our Canadian border and about on a line with the Montana-North Dakota line.

The Canadian government has moved swiftly to stamp out the disease. The cattle, swine, and sheep on the 22 infected farms are being destroyed and buried. All of their feed will be burned and the farms will be disinfected.

This may be considered drastic action by those who have not had experience with foot and mouth disease. Actually, it is the only means available to make certain that this livestock scourge will not spread and cripple the entire livestock industry.

There is every reason to believe that our neighbors to the north will be successful in their campaign in Saskatchewan. The men in charge of disease control activities are acting quickly and thoroughly with every means at their disposal. Naturally, all farmers owning livestock on infected farms will be fully compensated for the livestock destroyed and for other inconveniences.

It is vitally important that we appreciate, at the present time, the possibility of the disease breaking out in other parts of Canada, or in this country. As the livestock commissioner of British Columbia stated recently, "Cattle cars which carried infected cattle might turn up in Vancouver, Toronto, or Chicago, and there might be an outbreak anywhere." Meanwhile, U. S. inspectors are at work tracking down all live animals brought into the U. S. from Canada in recent weeks. They will be watched closely for possible infection.

You owe it to yourself and to the entire livestock industry to be familiar with the symptoms of foot and mouth disease. Suspecting such symptoms, immediately notify your veterinarian so he can pass on the information to the state and federal livestock sanitary officials. Certainly you expect the same cooperation on the part of other livestock farmers so that your herd may, in turn, be protected.

The earliest symptoms are dullness and fever. The animals stand around with their heads down and ears drooping. They drop off in milk production while refusing to eat. After 12 to 36 hours of such behavior, structures like water blisters begin to appear in the mouth and on the lips and tongue. These blister-like growths are known as vesicles and may also appear on the muzzle, teats, udder, and even between the claws of the feet and around the tops of the hoofs.

Affected animals soon become lame, due to the soreness caused by the lesions on the feet.

At about this same time, the animals start to slobber and are unable to eat because of the sores in the mouth caused by rupturing of the vesicles. When such rupturing occurs, a nasty raw area is left that is exceedingly painful. It is not unusual to find animals that show all stages of vesicles from the tiny, round, red swelling down to the raw area that indicates where a ripe vesicle has broken open. Along with these symptoms goes an extremely rapid spread through all animals in a herd and even a whole community.

It would seem that the symptoms of foot and mouth disease are distinctive enough but, unfortunately, they are also the symptoms of at least two other diseases. These are known as vesicular stomatitis and vesicular exanthema. About the only method of positively differentiating these diseases depends on the inoculation of test animals.

There is a possibility that foot and mouth disease might be confused with the recently reported X-disease or hyperkeratosis. This disease is discussed in detail on page 310 of this issue.

If we are to protect our livestock and our livestock farmers from tragic losses in the future, we must know these symptoms, look for them in our cattle, and report them promptly. By so doing we may be assured that we will continue to live in this country without foot and mouth disease. That is our common goal. It can and will be achieved.

"HIT AND RUN"

IF YOU haven't read Mason Dobson's article, "'Hit and Run' in the Dairy Barn," please turn to page 269 and read it now. We are sure that the author speaks for practically every dairy farmer in the United States whose farm is subject to the jurisdictions of two or more public health departments.

Certainly the dairy farmer suffering duplicating inspections should merit a medal for patience, broad-mindedness, tolerance, and self-control. Why he has not become violent more often can be explained only by the circumstances which he recognizes. He is powerless to complain or appeal because the whim of the inspector can determine the dairy farmer's livelihood. Without right of appeal to an impartial court, he can do nothing but "take it" no matter how idiotic may be the rules of the health department or the whims of its inspector.

We do not know how long it will take for public health officials to realize that the quality of milk should be proven at the receiving platform. It is not determined by a mass of details itemized on a ridiculously long inspection sheet. An approach to saner regulations may result from a study now being concluded by a special committee of the National Research Council. If the recommendations of this committee are adopted by the U. S. Public Health Service, a great step forward may be realized.

We are tempted to itemize many instances of the type related by Mason Dobson. To do so here would serve no purpose except to fill the magazine and further prove the futility that we feel in reviewing such examples of rank injustice. Our only hope is that the "hit and run" article will find its way into the hands of milk inspectors and public health officials throughout the country. Perhaps then a day of awakening may approach.

This is not a condemnation of the milk inspector. In the vast majority of the cases, he is doing nothing more than carrying out the orders of his superiors. True, there are a few authority-happy characters who, through political influence or other lack of qualification, find their way onto the public payroll. Fortunately, they are in the minority but they create the great bulk of frustration and conflict which dairy farmers must endure.

If the cooperative marketing organizations and the National Milk Producers Federation wish to provide a service which will forever indebt their dairy-farmer membership, let them take steps now to bring reason out of the confusion and abuse that now prevails.

PAY FOR MORE RESEARCH

ANY business, to be strong, virile, and progressive, must be constantly alert to the potentialities of the future. Further, it must take advantage of those opportunities and in many cases create them. This is done through research and unending self-evaluation and criticism.

In agriculture, our industry progress has resulted largely from research and education financed by the general taxpayer and executed by governmental institutions. There is no question but that the government's investment has been repaid many times by the benefits derived, not only by farmers but by the entire country.

Indicating that American agriculture is entering a new phase in its growth, is the recommendation of John H. Davis that farmers should, through means available to them, pay for more agricultural research. As executive secretary of the National Council of Farmer Cooperatives, Davis made this assertion to the Farm Chemurgic Council, March 12. In addition to commonly accepted reasons for such farm support, Davis stated:

". . . farmers should pay for and conduct more research through their own farm organizations . . . to keep such organizations healthy. It seems to me that the most common and malignant disease which afflicts farm organizations is 'rutitis'. That is to say, they get into a rut with respect to policies. Once a major policy is adopted, it tends to become permanent — something to defend. Factions within an organization which wish to hold on to the status quo can often do so even against considerable pressure — particularly if the officers want no change.

"Another disease of farm organizations is 'negativitis' — the habit of being against the programs of others rather than having a constructive program of their own. To initiate a new program takes leadership and patience exercised over a considerable period of time. It also requires study, consultation, conference, and even compromise. On the other hand, to declare and execute a policy merely by opposing it, does not require any great amount of leadership or time. Therefore, the temptation for the officers of voluntary organizations — and this is not just peculiar to farm organizations — is to take it easy until someone else initiates a program or a policy. Then, if you can find fault with it, declare yourself against it.

"The best antidote to both of these afflictions is for a voluntary organization to have a research program which can turn up new, well-thought-out ideas of its own. It keeps the organization young and abreast of the time. This is important, since it is constructive and positive ideas which make for progress."

In 1902, W. D. Hoard wrote:

ONLY a rich man can afford to keep poor cows, but it is only the poor man who does keep them. The rich man who looks carefully after the dollars pays a high price for an animal and still makes a profit; the poor man buys a poor cow, thereby saving money in the wrong place, and then works double time, feeds more feed, gets less returns, and comes out a loser at the end of the year. Better buy one good cow than two poor ones for the same amount of money.

The old parable of the man who built his house upon the sand applies to other things besides houses, although frequently the application is not so evident.

Questions From Our Readers

Better Butter Flavor

In one of your editorials was a passing reference to the flavor that is added to margarine—it gave me an idea. Is there a substance that can be added to butter to give it additional flavor? If to margarine, why not to butter?

We have our own butter and it is excellent. But when I go to New York and eat the butter they serve I think it is much more delicious than ours and I wonder why. Their butter is "sweet," unsalted; so is ours.

Sometimes our cream is sour when churned; sometimes it is sweet. Our butter is good, excellent, but it lacks the delicious flavor.

What do you think accounts for the difference? Is there a "butter flavor" one may add to make good butter better?

Maryland Mrs. R. L.

In the manufacture of butter the exceptionally fine flavor and aroma of good butter is produced during the "culturing" process on the cream.

In commercial practice, a substance known as "starter" is added to the cream after it has been pasteurized and before the butter is churned. This starter is skimmilk to which selected flavor-producing bacteria have been added. These bacteria produce chemicals of diacetyl and acetylmetholcarbinol, which are the aromatic flavors.

In order to produce this same result on your own churned butter, we suggest the following procedure. Secure from your local dairy some of their cultured buttermilk. This is the viscous type of buttermilk and not the product remaining after cream is churned.

Add about 3 to 4 per cent of this buttermilk to your cream and allow to set for 24 hours before churning. A quart bottle of buttermilk will contain a little more than two pounds.

In churning small amounts of cream we would suggest that probably a pint or half pint of buttermilk would be sufficient to purchase because of the need for having a fresh supply each time you make butter. A half pint of the cultured buttermilk would be sufficient to use in 12½ pounds of cream.

The exact results cannot be guaranteed, naturally, because we would have no knowledge of the type of organisms in the buttermilk available in your area. However, this method approaches the commercial butter manufacturers' procedure. Most of the buttermilk, available from dairies, contains some of the highly aromatic, flavor-producing organisms.

It may be necessary for you to vary the percentage of culture that you add to your cream. You may want to go higher than the 4 per cent, which we have outlined in the figures above, or you may want to drop a little lower.

—RAY ALBERTS.

Sale of Sand and Gravel

I sold some gravel from my farm last fall. On what part of my income do I pay income tax?

Wisconsin E. B. G.

In computing net income from sale of sand and gravel, the taxpayer is allowed a deduction for depletion or depreciation. The percentage depletion under the 1951 Revenue Act is set at 5 per cent.

In discussing this in the income tax rulings, under depletion, the following are included: "Mines, oil and gas wells, other natural deposits, and timber."

"Other natural deposits" specifies deposits. Some of the minerals mentioned in this list, which are important to our farmers, are building stone, clay, crushed stone, gravel, limestone, peat, sand, soapstone, and talc.

The taxpayer must determine the original investment in the sand or gravel bank, or whatever pit or quarry it may be. The pit is usually part of the farm. For example, if the farm cost $20,000 and the portion of the farm represented by the pit might be allotted at $1,000, the 5 per cent depreciation would apply to only the $1,000.

Now, if the farmer sold $200 worth of sand and gravel, he could deduct $50 as depletion (5 per cent of $1,000). He would do this every year he sold sand or gravel.

It must be remembered that when the farm is sold all of this depletion taken must be deducted from the cost of the farm. —I. F. HALL.

Vaccination for Bang's

1. If we vaccinate our heifers at six months of age, will that carry them through life or must it be periodically? Will this immunize the heifer and the adult or mature cow from Bang's disease?

2. If a mature animal has not previously been vaccinated and should become infected with Bang's disease, is there a cure? Or should the animal be sent to the slaughter house? Will this hold true with either sex?

3. When a breeder states that his heifers or bull calves were calf vaccinated does he mean vaccinated prior to the six months you stated in one of your columns some time ago? Would this early vaccination be of any practical value in later years of the animal's life?

4. We had a heifer, 12 months old, out in pasture and a neighbor's bull broke into our pasture breeding our young heifer. Can artificial abortion be practiced on this heifer without ill effects in later life? She is far too young and undeveloped for the occasion and we hate to lose so valuable a heifer.

5. In your opinion, will leaving the milking machine on the cow too long affect her milking habits or milk producing ability, or the length of time she will produce milk—length of lactation period? Will this affect the first calf heifer more than a mature cow?

Tallmadge, O. D. C. T.

1. Vaccination of calves from 4 to 8 months of age with strain 19 vaccine is designed to give protection from exposure to Brucella (Bang's) organisms. This protection produces a certain amount of resistance. It does not confer absolute immunity. The resistance conferred will vary with the individual animal although most animals receive considerable protection for most of their remaining lives. Re-vaccination is not recommended, except occasionally in herds where considerable infection exists.

2. To date, no cure has been found for an animal infected with Bang's disease regardless of age, breed, or sex. Whether an animal should be sent to the slaughterhouse depends on a number of circumstances. Often valuable animals that react to Bang's disease can be kept in the herd or preferably placed in isolation, especially during the calving period. We suggest you consult with your veterinarian or your state veterinary department in formulating the best program to follow in your herd.

3. When an owner speaks of a calf that has been vaccinated, he refers to an animal that was vaccinated between the ages of 4 and 8 months. This vaccination has practical value, particularly if the animal is likely to be exposed to infection sometime in later life. Animals vaccinated with strain 19 beyond the age of 8 months are classed as adult vaccinated animals.

4. Artificial abortion can be performed on your heifer usually without ill effects. This can be accomplished by your veterinarian by removing the corpus luteum (yellow body) from one of the ovaries and/or injecting estrogenic hormones. If this treatment is not successful, a suitable instrument may be passed through the cervix into the uterus and a mild, non-irritating antiseptic injected.

5. In our opinion, leaving the milking machine on a cow too long will not only eventually affect her milking habits but will interfere with her milk producing ability. The reason for this is that the daily extended period of milking will develop irritation of the milk duct to the extent that tissues will be injured, and mastitis is more likely to develop. Chronic mastitis gradually destroys milk secreting tissue and this often interferes with the length of the lactation period as well as the amount of milk the cow produces.

Don't worry about finding your station in life; somebody will be sure to tell you where to get off.

Too Little Potash Used Rather Than Too Much

HOARD'S DAIRYMAN:—I was interested in Mr. Hurlburt's story "What I Saw In New England Pastures" and especially in his comments on the problem of bluegrass "running out" ladino clover.

He says that perhaps we use too much phosphate. I would turn that around and say undoubtedly we use too little potash in the fertilizers applied to these soils and these pastures. Each ton of ladino clover requires somewhere around 40 lbs. of potash. Its requirements are very similar to those of alfalfa. In Ohio they have found that the maintenance of a good stand of alfalfa requires 100 lbs. of potash per acre per year. That would mean the potash in 500 lbs. of 0-20-20 or 300 lbs. of 0-10-30 or 170 pounds of 60 per cent muriate of potash. Part of this potash will come from that which is released from the slowly available supply of potash in the soil. Some of it will come from top-dressings of manure which carries about 10 lbs. of potash per ton of fresh manure. The remainder of the potash required seemingly must be supplied in fertilizer.

The soils of Eastern Ohio on the average will release approximately 10 lbs. potash per acre per year for plant use. Those in Western Ohio may go as high as 40 or 45 lbs. potash per acre per year released from the native supply of potash in the soil. The rest of it must be provided either through manure or through commercial fertilizer or some other source.

When 100 lbs. of potash have been supplied to alfalfa in the Ohio tests through manure or fertilizer top-dressed on the established stand of alfalfa, they have been able to hold these stands in highly productive condition for as long as eight years, whereas the normal length of stand on most farms in Ohio runs about two to three years.

If Mr. Hurlburt uses only phosphate on his pastures the supply of potash at least sometimes during the year would be critically low. When this supply of potash is at the critical point, ladino clover or alfalfa or most any other of the legumes cannot compete with grass for if you compare the root systems of the two types of plants you will see that grass will contact a much greater area of soil than any of the legumes and will have first call on the potash that is available there. When tissue tests are run on low potash soils, the grasses generally are high in potash while the legumes are medium to low in potash in spite of the fact that the requirements of legumes for potash are much higher than the requirements of grasses.

Some farmers have commented that they have been able to regulate the proportion of legumes to grasses in their soils by the judicious use of nitrogen, phosphate, and potash. When phosphate is carried at an optimum level in the soil and potash is supplied in amounts needed to maintain the legume stands, grass can be either encouraged or discouraged by the judicious use of nitrogen. Some farmers have indicated that alfalfa will crowd out the grasses if phosphate and potash are maintained at high levels and top-dressed each year on the established stands.

Annual top-dressings are generally necessary to maintain the potash supply. Where attempts have been made to put on enough potash to last over a period of two or three years, analysis of the forages indicated that the potash content is exceptionally high; in fact, much higher than is needed for optimum plant growth during the first year. Then, however, the potash has been taken from the soil so that during the second year the level of potash is below that needed for the optimum growth of the legumes. The soils men in the Middle West at least have agreed that the most efficient use of potash involves annual applications, especially on sod crops.

One further fact associated with a low potash supply that encourages any of the grasses to take over ladino fields is the fact that ladino clover is one of the most efficient fixers of nitrogen of any of the legumes and will furnish to associated grasses a greater supply of nitrogen than most any of the legumes. This relative abundance of nitrogen will encourage grass growth particularly where there is not enough potash for the fast recovery of the legumes, so that the grasses could easily crowd out the legumes.

Z. H. BEERS, Executive Secretary, Middle West Soil Improvement Committee.

CELEBRATING GUERNSEY'S

GUERNSEY'S 75th ANNIVERSARY 1877 1952

1877-ASTOR HOTEL, New York City

A small group of eastern farmers, meeting at the Astor Hotel in 1877, organized the American Guernsey Cattle Club to maintain the purity of the breed, and to preserve the ancestry of cattle imported from the Island of Guernsey.

A dairy farmer from Connecticut, organizer of that state's first creamery, was selected as secretary-treasurer of the new organization.

Two hundred and thirty-four pure bred Guernseys were registered the first year. This number represents about a half day's work for today's national organization.

1877-1902 — Twenty-two thousand, one hundred and eighty-one animals were recorded by the American Guernsey Cattle Club during its first quarter century. This is an approximate equivalent of less than three month's work for the national organization in 1952.

1902-1927 — Official testing for production began in the second twenty-five year period. Public breed tests had convinced dairymen of the merits of the Guernsey cow. Even greater interest was created by production tests under the supervision of agricultural colleges.

Ten thousand head were imported during a relatively short period of time, increasing the national reservoir of pure bred cattle. Fairs brought Guernsey cattle to the attention of dairy farmers all over America — and Guernseys proved successful in the varied climates from north to south, and east to west.

1927-1952 — During its third quarter century, the American Guernsey Cattle Club saw the breed multiply in tremendous numbers. A great new population of grade cattle were sired by registered Guernsey bulls.

The New Building — Many visitors to Atlantic City will also tour New England and visit the new American Guernsey Cattle Club building at Peterborough, N. H.

Peterborough is about sixty miles from Boston and to the west is the famous Molly Stark Trail over the Green Mountains to Troy and Schenectady. The Peterborough to Troy Route (about 110 miles) is good traveling and highly scenic with a view of seven states from the summit. Many good herds can be visited on either side of the route.

1952 CHALFONTE-HADDON HALL Atlantic City

Thousands of Guernsey breeders will attend one or more of the many activities scheduled for Guernsey's 75th Anniversary Week, which will reach its peak at Chalfonte-Haddon Hall, Atlantic City, N. J.

The Spring issues of the Guernsey Breeders' Journal will present invitations from many breeding establishments. The April 1 issue contains a special New Jersey Directory and the April 15 issue a special Pennsylvania insert.

The McDonald Sale at Cortland, N. Y., is scheduled for Saturday, May 10, at 1:00 P.M.

Visitors are also invited to Coldsprings Farm, owned by S. C. Price, Hazelton, Pa. They will show their herd Sunday morning May 11th, starting at 9 A.M. Visitors will be entertained at lunch at the new Price's Dairy Store.

Llan Fair Farms, about forty miles distant, owned by William L. Jones, Pine Grove, Pa., will hold open house at the new guest lodge Sunday afternoon.

Ideal Farms, owned by Jacob Tanis, Augusta, N. J., will hold open house and entertain at lunch Monday, May 12th.

Monday, May 12th — On Monday night the New Jersey Guernsey Breeders' Association will hold a reception starting at 5:30 at Haddon Hall, followed by an American Plan dinner, with the evening free.

Tuesday May 13th — In the morning, progress of the breed in type and production will be discussed by leading national authorities representing various fields which have contributed to that progress. Luncheon at noon will be held at Haddon Hall. In the afternoon, guests will be entertained by Mr. and Mrs. George A. Off, Brighton Farms, Linwood, N. J., who are among the largest orchid growers in the world. The herd here numbers 150 head. A panel on merchandising GOLDEN GUERNSEY Milk for representatives of various GOLDEN GUERNSEY dairies will continue in the afternoon at Haddon Hall. Tuesday evening, Guernsey breeders of surrounding states will entertain at a banquet followed by a party.

Wednesday, May 14th — The 75th ANNUAL MEETING will be called to order at 10 o'clock in the morning by President R. F. Loree. A complimentary luncheon will follow the meeting. Guests will be entertained at dinner and an evening party by Mr. and Mrs. J. Forster Abeel of Forsgate Farms, Inc., Jamesburg, N. Y.

Thursday, May 15th — The National Guernsey Sale will start at Forsgate Farms at 1:00 P.M.

Friday, May 16th — Eastern Guernsey Sale will start at Glenburnie Farm, Trenton, N. J., at 1:00 P.M.

During this week many dairymen will renew old acquaintances and make plans for the coming year in their own herd. All are welcome at any or all sessions.

For ANNUAL MEETING RESERVATION BLANK, write:
The American Guernsey Cattle Club, Peterborough, N. H.

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75TH ANNIVERSARY

The GUERNSEY Cows are Celebrating, Too

A new national record over all breeds has just been completed by Ivy Oak Belle's Jingle.

She is the first cow of any breed, eight years old or over, to make over 1,000 pounds of fat in ten months. She is owned by M. C. Fleming, Troutdale, Oregon. Her record is 19,239 pounds of milk and 1,045 pounds of butterfat. She dropped a bull calf at the completion of her record.

"Jingle" produced more than $100 a month income during her record. The bull calf will bring a price equivalent to a nice dividend.

Jingles in the barn produced jingles in the owner's pocketbook.

Literally, pure bred Guernseys produce "Liquid Gold".

Franchester St. Charm, owned by Jacob Tanis, Augusta, N. J., another pure bred Guernsey with tremendous milk flow, produced 24,578 pounds of milk and 1,045 pounds of butterfat. She dropped a bull calf at the completion of her record.

She was the new National Champion Guernsey milk producer until her record was exceeded by that of Welcome-In Forward's Clara.

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The saving to the consumer is due to the fact that GOLDEN GUERNSEY Milk, with its greater solids per hundredweight, costs no more for transportation from the farm to the city — and from the bottling plant to the consumer — than does milk of lower food solids. Transportation and delivery costs, representing nearly half the retail price of a bottle of milk, have more than doubled in recent years. It is therefore more economical per quart to transport and deliver milk with greater solids content.

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/E OF HIS
UGHTERS

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LP-Gas for Tractors

(Continued from page 275)

The vapor withdrawal system is cheaper and can be used in many instances on smaller engines and in warm weather. However, "freezing" of the bottle in winter has given a lot of trouble with the two-plow tractor. The liquid fuel inside the tank or bottle when evaporating cools the liquid below its boiling point, which is 44°F. below zero for propane and 31° F. for butane, and that is called "freezing." When this happens the liquid doesn't evaporate and sufficient fuel vapor won't be supplied to keep the engine operating properly.

With the "liquid withdrawal" carburetion system, the liquid fuel is drawn from the bottom of the tank and passed through a pressure regulator. From here it's piped to a heat exchanger and vaporized. The vaporized fuel is mixed with air in a carburetor similar to the ones used with the vapor withdrawal system.

The liquid withdrawal system, while being the more expensive, is likely to be more satisfactory for tractors in this area.

Compression Ratio

Most tractor engines have compression ratios between 4.0 and 6.0. The lower compression units are specifically for distillate and tractor fuel while the higher ratios are for gasoline. With gasoline in the 4.0 compression ratio engine, more is used with no power increase.

The same general relationship is true with propane. Graph 1 shows a decrease of 9 per cent in the maximum power output of an engine when changing from gasoline to propane without varying the compression ratio or manifolding. Graphs 2 and 3 show a small decrease in fuel cost, but this is because of the lower cost per gallon. Actually the gallons of fuel burned per hour increased.

The compression ratio may be increased by using higher pistons, planing off the head, using head inserts or any combination of these. Some automotive engines are using ratios as high as 10 to 1; however, none of the factory-equipped tractors are this high. Increasing the compression ratio too much may lead to difficulties of bearing and gasket failures, etc., and it is always wise to consult the manufacturer on the best method of increasing the compression of the engine.

Starting Trouble

Cold weather starting has been one rather common source of trouble with LP-powered tractors. It's especially bad if the compression ratio has been increased considerably and the tractor uses a battery ignition system. One reason for this is that the common 6-volt battery doesn't supply enough current to turn the engine over at normal cranking speeds and also produce a strong ignition spark. A 12-volt electrical system would improve this situation.

Another cause of hard starting is improper air-fuel mixture. This may result from poor carburetion equipment, improper adjustment, inexperienced operator or a combination of these.

Converting Tractors

If you are planning to convert your tractor to use propane, here are the things you should do:

1. Increase the compression ratio.
2. Install a cool intake manifold.
3. Advance the ignition timing.
4. Obtain a satisfactory carburetion system.
5. Install cold-type sparkplugs.

The original cost of such equipment is rather high (around $300—fall of 1951) and the only way that such a unit will be economical is to save enough in fuel cost to counterbalance this change-over cost. It's easier to justify converting a tractor that is used many hours a year than one used only a few. The mechanical condition and future life of the tractor are important. It isn't practical to convert a tractor that's nearly worn out or in poor condition.

Handling and Storage

Handling and storage of this fuel is one of its big disadvantages. It's necessary to use special equipment for handling, transporting, and storage. In order to buy it at the low cost from the bulk distributor (cost in bulk is about one-fourth that in bottles), one needs a tank that holds 500 to 1,000 gallons. Suitable bulk storage of this size may cost as high as 60 cents per gallon of capacity.

Also, in order to fill the tanks on the tractor you need a special pump, valve, and adaptor system. This equipment is required by law to be of the type that has two lines from the storage tank to the tractor tank. In one of these lines the liquid fuel is pumped into the tractor tank and the vapor is allowed to return through the other hose.

One can learn with experience to fill the tank on the tractor rather easily. But having to return the tractor to the storage tank for refueling when you're "in the back 40" with a job in process may be both inconvenient and costly. It's a little different from gasoline where you can take a supply to the field in cans. In some instances it may be desirable to mount a 200- or 250-gallon storage tank for LP-gas on a trailer so that it can be hauled to the field.

It's hazardous to try filling regular 100-pound bottles from the bulk tank. Without the proper filler adaptor, this is unlawful as well as dangerous.

(Editor's Note: The author is on the staff of the Agricultural Engineering Department, Iowa State College. This article appeared originally in the November issue of Iowa Farm Science.)

"Whatever made you make a talking crow out of him, Paw? All he ever does now is give you an earbeating for planting that poor corn."

W. CLARK FLEMING, Jr.
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"Gehl Forage Blowers have been used exclusively for several years. We found them better than any others we have used or seen demonstrated. Our next forage harvester will be another Gehl which will give us Gehl Equipment altogether."

(Signed) W. Clark Fleming, Jr., *Manager*

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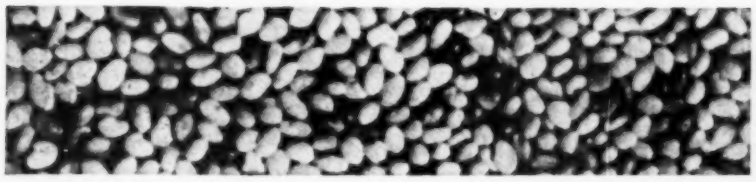

There Should Be Plenty Of Grass And Legume Seeds

by G. C. Edler

AS WE get ready for the 1952 planting season, let's take a look at the available supplies of grass and legume seeds. During 1951, we produced just a little better than average amounts of hay and pasture seeds. It was far below 1950, the banner year, however. Fortunately, we have a record carry-over from 1950 which makes our supplies quite ample in most instances.

The total supply of these seeds at the beginning of our planting season is just a little below that of last year and well above the 1940-49 average.

Seven legume and grass seeds—alfalfa, red clover, alsike clover, ladino clover, timothy, orchard grass, and brome grass—are widely used in states where dairying is important. We produced more of all of these seeds during the past year with the exception of alsike clover and timothy. Offsetting the reduction in alsike clover and timothy is the fact that we seeded smaller quantities of both last year than we have sown in many years.

Although demands for five of the seven seeds are expected to continue at high levels, carry-overs of four of them next June are expected to be much above average. Here is the picture:

ALFALFA—The 1951 production of clean alfalfa seed was 3 per cent smaller than the large 1950 crop, but 50 per cent above the 1940-49 average. Production of northern and central-grown alfalfa seed plus production of improved varieties of seed grown in the southern producing area but adapted for planting in the North was about a fourth larger in 1951 than in 1950. It was nearly half again as large as the 10-year average.

The record carry-over of alfalfa seed more than offsets the smaller 1951 crops in this country and Canada, so that current supply is a little larger than a year ago, and much above average.

RED CLOVER—The 1951 crop of red clover seed was about a third below the record 1950 crop, but was one-eleventh above average.

The record carry-over of this seed, four times as large as a year ago, offsets largely the sharp decline in the 1951 production, so current supply is only 9 per cent below that of a year ago and nearly a third above average. The largest quantity of this seed on record was sown during the 1950-51 season. If consumption this season equals that of last, carry-over into the 1952 crop will be about a third less than in June, 1951, but half again as large as average.

ALSIKE CLOVER—The 1951 production of alsike clover seed was slightly smaller than in 1950 and somewhat below average. The crop in Canada was one-sixth smaller than in 1950 and 44 per cent below average.

The larger carry-over practically offsets the smaller production in 1951, as current supply is only one per cent smaller than a year ago, and a seventh below average. During the 1950-51 season the quantity of alsike clover seed sown was the smallest in six years. If consumption in the current season continues at the same low level, carry-over into the 1952 crop will be about equal to the small June 1951 carry-over, but more than a fourth less than average.

LADINO CLOVER—With a record acreage in 1951 and a yield per acre nearly equal to the highest for 1949, the 1951 production of ladino clover seed was one-fourth larger than in 1950 and nine times the average. Current supply of this seed, made up of a record production and a record carry-over, is more than half again as large as a year ago and nearly 10 times the average. This situation is reflected in much smaller imports since July 1, 1951, than a year ago.

TIMOTHY—Smaller crops of timothy seed than in 1950 in each producing state resulted in a 1951 production a third smaller than in 1950 and a fourth below average. The Canadian production was 45 per cent smaller than in 1950 and 9 per cent below average.

The current supply of timothy seed, including a carry-over 12 times as large as that of a year ago, is slightly larger than last year, but a seventh below average. Consumption of this seed during last season was the smallest in many years. If no more is sown during the current season than last, carry-over next June will be the largest in seven years.

ORCHARD GRASS—The 1951 production of orchard grass seed was only 4 per cent smaller than the record 1950 crop and 62 per cent above average. Although production plus carry-over of this seed is 15 per cent larger than a year ago and 86 per cent above average, recent imports of this seed from Denmark have been very large. During the 1950-51 season more orchard grass seed was sown than ever before. But unless consumption increases sharply, the carry-over into the 1952 crop will be the largest on record.

BROME GRASS—Production of smooth brome grass seed in 1951 was only about half the large 1950 crop, but about half more than average. The Canadian crop was 5 per cent smaller than in 1950, but 72 per cent above average. The supply of this seed is 25 per cent smaller than a year ago, but 86 per cent above average. Consumption of brome grass seed during the season just past was the largest on record. If it continues this year at the same level as last, there will be practically no carry-over on June 30, 1952.

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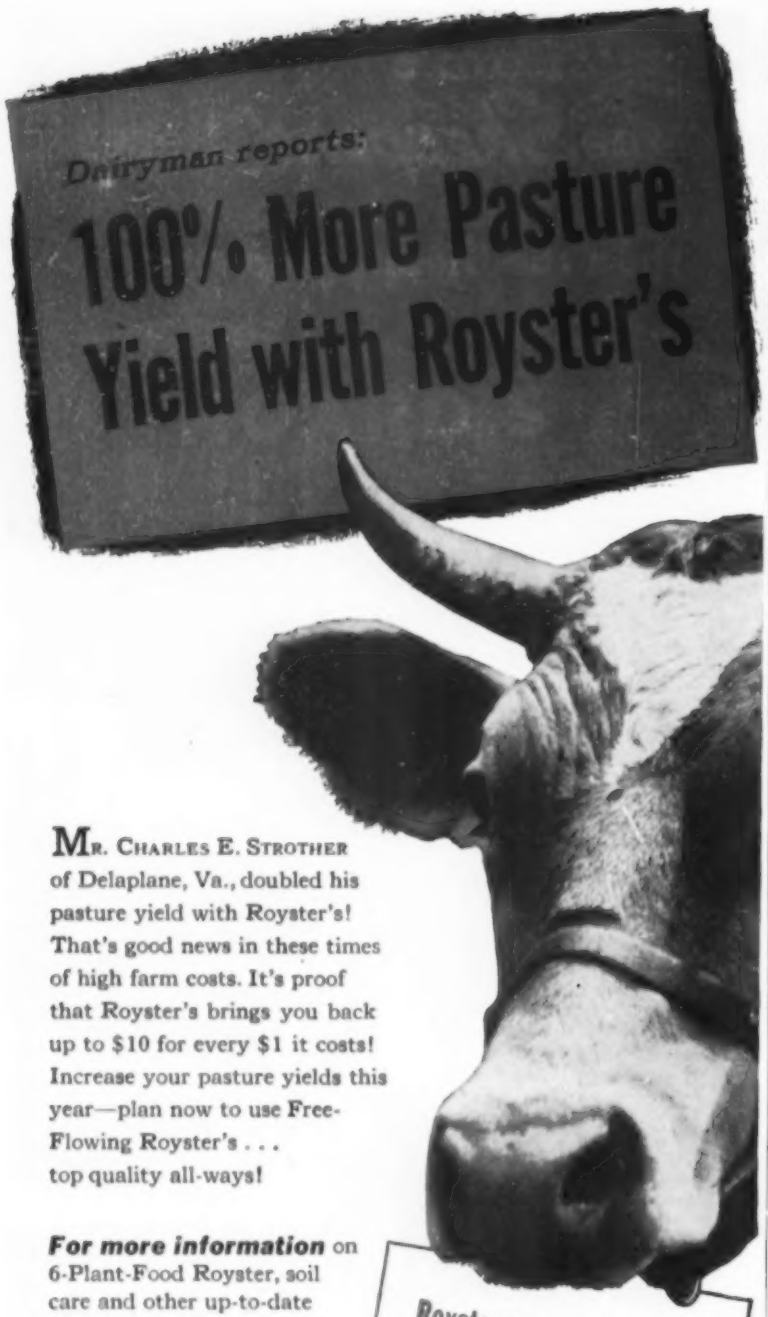

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Oregon Association Identifies A. B. Calves

by William G. Schulz

Dairyman Robert Barnes holds calf while Bill Williams, Marion Co. OBDA technician, uses rotary tattooing outfit to apply ear markings.

OREGON dairymen are using tattoo to identify calves sired artificially. The system was started three years ago. Thoroughly tested, and proved workable, it is now being used statewide by members of the Oregon Dairy Breeders Association.

The method consists simply of identification marks tattooed in the calves' ears. These identifying marks are recorded in the association's records and a full identity check is therefore available on each animal sired by association bulls.

Tattooed in the left ear is a code number indicating the calf's sire; in the right ear is another tattoo, a serial number, identifying the calf as to its dam. (The latter is sometimes placed in the left ear, beneath the sire code number.)

(Editor's Note: In many states the vaccination tattoo is placed in the right ear.)

Identification tattooing is done by the inseminator as a part of his regular duties. This is a free service,

The diamond in code number certifies calf is sired by an OBDA bull, J represents Jersey breed, 20 is number of an association sire.

being included in the breeding fee paid by the dairyman. Each inseminator carries a rotary tattooing outfit as part of his standard equipment.

Still a third feature of this Oregon system, and one that gives it additional value, is the use of a diamond-shaped emblem or brand tattooed in the left ear, alongside the code number. This diamond is registered with the state department of agriculture's division of brands. Let Ben Simonson, manager of the Oregon Dairy Breeders Association (called ODBA for short), explain the benefits of this diamond:

"We felt that as the years went on, our identification work would grow in value, for we regard calf identification as a vital phase of the whole artificial breeding program. So, to prevent later false identification, we adopted this diamond as our official ODBA brand. In other words, any animal bearing this diamond in its left ear is immediately certified as an offspring from one of the ODBA bulls. No one else in Oregon, under the law, is authorized to use this particular brand in just this way."

Credit for originating this highly valuable feature must be given to the Malheur county unit of the ODBA, Simonson points out. Dairymen there had been using the diamond for some time on their artificially sired calves. Directors of the state organization, impressed by its benefits, arranged with the Malheur county people to adopt it for statewide use.

Let's look now into the specific identification of a calf as to its sire. This consists of a code number which refers to a certain bull in service at the ODBA bull farm. The letters J, H, and G are used for Jersey, Holstein, and Guernsey, respectively. For example, take the tattoo J-20. This refers to a certain Jersey sire, Lilac Coronator Cap. He is a bull, by the way, that has been used extensively, so his identification appears in many calves' ears. To the left of this sire code also appears the diamond brand.

As for identification of the calf as to its dam, Simonson says: "We consider it important that our members be provided an accurate means of showing which cow a calf is out of. So we tattoo a number in the calf's right ear, starting with No. 1 and continuing indefinitely. This becomes the key to checking our records listing the calf's mother.

"Suppose she is No. 36. This refers to just one particular heifer in that county and to no other. All that is necessary is to check the individual farmer's barn sheet, or the county association records, to determine the dam. This is imperative for dam-daughter comparisons in the proving of bulls by their daughters on test."

Each dairyman who breeds his cows to ODBA bulls has a barn record sheet or chart listing each female in his herd as she is bred. Next to the cow's name the farmer writes in the date of calving, sex of the calf, and the tattoo identification. Listed also is the breeding date and the code number of the service sire.

One of the benefits to the dairyman from this calf identification is to prevent the breeding of a bull to his own daughters or granddaughters. While it is true that some purebred breeders do intensify line breeding to the point of inbreeding, mating a bull with his own daughters, sisters, etc., such a practice is not generally advisable.

When the inseminator goes to breed a cow or heifer and finds she has no identification at all, she is given an eartag with a number for

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permanent identification, also to distinguish her from other females in the herd. Thereafter, when she drops a calf it can be accurately identified as to its dam.

"However, from now on, this will become less and less necessary," Simonson points out. "That's because more and more artificially sired heifers will carry the ear tattoo identification, placed there as young calves. Consequently, as time goes on, it will be possible to determine the full lineage of animals, generation after generation, by referring to the records."

The ODBA requires that the ear tattoos be applied sometime during the first few weeks after birth—the sooner the better—before the owner loses track of his calves or gets them mixed up. To facilitate matters, technicians keep their own record books, showing each calf's tattoo identity.

Though pushing its identification program among its members generally, the ODBA does not conceive of it as necessary for dairymen with registered purebred cattle. These have their own identification systems, specified by their respective purebred breed associations. The same is true for farmers with grade cattle who have identification systems of their own. They usually continue with the systems they are already using.

"We find that we still have some 'selling' to do on this program," Simonson comments, "since it is so new to many dairymen. But we find that once they have tried it and become acquainted with it, they are enthusiastic and cooperate fully."

> **If I was as bad as they say I am,**
> **And you were as good as you look,**
> **I wonder which one would feel the worse**
> **If each for the other was took.** —*G. B. Baker.*

The question may arise in the minds of some: how about calves with black ears—Holsteins, for example? The ODBA, for a time, experimented with the use of a white ink tattoo in such cases but found it unsatisfactory, and returned to the use of black ink. Though not so distinct as when applied in light-colored ears, the black ink is sufficiently legible nevertheless, Simonson reports.

Not to be overlooked as another major gain from this calf identification program, Simonson adds, is the increased value of calves. "We are getting more and more reports of calves sired by ODBA bulls outselling other calves at auctions and other sales."

Still another gain is the boost given to the DHIA sire-proving program. Testers often say they have difficulty in determining clearly the sire of some cow or heifer. But from now on, more and more Oregon cows and heifers on DHIA test will be accurately identifiable as to sire. Hence far more daughters' records will be available in the proving of bulls.

"But doesn't all this take a lot of time?" is a question that many doubtless will ask. "Yes, but not too much, and the net gains far outweigh the extra effort given to it," Simonson replies.

"The technician is required to spend more and more time with the farmers, it is true, but in that way he can work in closer cooperation with them. This builds good will between the association and its members, and makes for better public relations in promoting the whole artificial breeding program."

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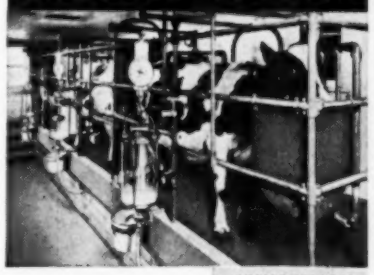

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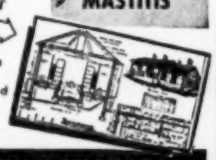

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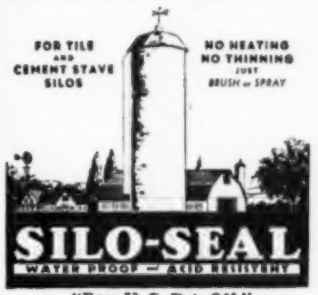

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How To Determine What To Buy

IN PRACTICALLY every section of the country, feed prices are going higher. There are various factors contributing to the higher prices, but regardless of the cause, every man in the dairy business will want to give careful consideration to the feeds he buys.

It should be emphasized that it costs nearly as much to feed a poor cow as a good one, since you feed the poor one just as much for maintenance and overhead. The more milk a cow produces, the more evenly the overhead is spread out and therefore the cheaper she produces milk for you. This being the case, along with the prediction that meat prices are very apt to continue to decline, this is an excellent time to cull your "boarder" cows.

What to Look For

Whether you buy hay by the ton, grain by the bushel, or mixed feed by the sack, the question is not what does it cost per pound, but what do the nutrients that the cows make into milk cost per pound? Every dairyman knows alfalfa hay is worth more per ton than wild grass hay, but how much more? How do such feeds as corn, barley, oats, wheat bran, cottonseed meal, etc., compare and which are the cheapest, not per pounds of feed, but per pound of digestible nutrients the cow obtains from each?

The first step in purchasing feeds is to familiarize one's self with the classification of feeds according to their protein content in order to know which to substitute for the other, and to keep in mind just what specific purpose a feed is being purchased for . . . protein or total digestible nutrients.

Carbohydrates furnish energy to the body and assist in the formation of fat in milk and in the body. Digestible crude protein is used by the cow to form the proteins in the milk, the muscular tissue, skin, hair, horns, and sinews. Total digestible nutrients include both the protein, carbohydrate, and fat equivalents. It is

VALUE OF FEEDS BASED UPON COSTS PER POUND OF DIGESTIBLE PROTEIN

Chart I—High Protein Feeds

Price per ton	Price per 100 Lbs.	Soybean oil meal cp* 44 dp* 38	Gluten meal cp 43 dp 37	Cotton-seed meal cp 42 dp 34	Linseed meal cp 35 dp 30	Gluten feed cp 26 dp 23	Brewers grain (dried) cp 26 dp 21	Dist. grains mixed (dried) cp 23 dp 15
		Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.
$ 50	$2.50	6.6	6.8	7.4	8.3	10.9	11.9	16.7
60	3.00	7.9	8.1	8.8	10.0	13.0	14.3	20.0
70	3.50	9.2	9.5	10.3	11.7	15.2	16.7	23.3
80	4.00	10.5	10.8	11.8	13.3	17.4	19.0	26.7
90	4.50	11.8	12.2	13.2	15.0	19.6	21.4	30.0
94	4.70	12.4	12.7	13.8	15.7	20.4	22.4	31.3
98	4.90	12.9	13.2	14.4	16.3	21.3	23.3	32.7
100	5.00	13.2	13.5	14.7	16.7	21.7	23.8	33.3
104	5.20	13.7	14.1	15.3	17.3	22.6	24.8	34.7
108	5.40	14.2	14.6	15.9	18.0	23.5	25.7	36.0
110	5.50	14.5	14.9	16.2	18.3	23.9	26.2	36.7
114	5.70	15.0	15.4	16.8	19.0	24.8	27.1	38.0
118	5.90	15.5	15.9	17.4	19.7	25.7	28.1	39.3
120	6.00	15.8	16.2	17.6	20.0	26.1	28.6	40.4
124	6.20	16.3	16.8	18.2	20.7	27.0	29.5	41.3
126	6.30	16.6	17.0	18.5	21.0	27.4	30.0	42.0
130	6.50	17.1	17.6	19.1	21.7	28.3	31.0	43.3

Chart II—Low Protein Feeds

Price per ton	Price per 100 Lbs.	Wheat midds. cp* 17 dp* 15	Wheat bran cp 16 dp 13	wheat cp 13 dp 11	Rye cp 12 dp 10	Barley cp 12 dp 9	Oats cp 12 dp 9	Kafir grain cp 11 dp 9	Corn shelled cp 10 dp 7	Corn & cob meal cp 8 dp 6
		Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.
$ 40	$2.00	13.3	15.4	18.2	20.0	22.2	22.2	22.2	28.6	33.3
50	2.50	16.7	19.2	22.7	25.0	27.8	27.8	27.8	35.7	41.7
54	2.70	18.0	20.8	24.5	27.0	30.0	30.0	30.0	38.6	45.0
58	2.90	19.3	22.3	26.4	29.0	32.2	32.2	32.2	41.4	48.3
60	3.00	20.0	23.1	27.3	30.0	33.3	33.3	33.3	42.9	50.0
64	3.20	21.3	24.6	29.1	32.0	35.6	35.6	35.6	45.7	53.3
68	3.40	22.7	26.2	30.9	34.0	37.8	37.8	37.8	48.6	56.7
70	3.50	23.3	26.9	31.8	35.0	38.9	38.9	38.9	50.0	58.3
74	3.70	24.7	28.5	33.6	37.0	41.1	41.1	41.1	52.9	61.7
78	3.90	26.0	30.0	35.5	39.0	43.3	43.3	43.3	55.7	65.0
80	4.00	26.7	30.8	36.4	40.0	44.4	44.4	44.4	57.1	66.7
84	4.20	28.0	32.3	38.2	42.0	46.7	46.7	46.7	60.0	70.0
88	4.40	29.3	33.8	40.0	44.0	48.9	48.9	48.9	62.9	73.3
90	4.50	30.0	34.6	40.9	45.0	50.0	50.0	50.0	64.3	75.0
94	4.70	31.3	36.2	42.7	47.0	52.2	52.2	52.2	67.1	78.3
98	4.90	32.7	37.7	44.5	49.0	54.4	54.4	54.4	70.0	81.7
100	5.00	33.3	38.5	45.5	50.0	55.6	55.6	55.6	71.4	83.3

*cp—per cent crude protein, usually given on feed tag.
*dp—per cent of total protein that animal digests.

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VALUE OF FEEDS BASED UPON COST PER POUND OF TOTAL DIGESTIBLE NUTRIENTS

Chart III—High Protein Feeds

Price per ton	Price 100 Lbs.	Soybean oil meal tdn* 82	Gluten meal tdn 82	Cotton-seed meal tdn 74	Linseed meal tdn 78	Gluten feed tdn 77	Brewers grain (dried) tdn 65	Dist. grains mixed (dried) tdn 76
		Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.
$ 50	$2.50	3.0	3.0	3.4	3.2	3.2	3.8	3.3
60	3.00	3.7	3.7	4.1	3.8	3.9	4.6	3.9
70	3.50	4.3	4.3	4.7	4.5	4.5	5.4	4.6
80	4.00	4.9	4.9	5.4	5.1	5.2	6.2	5.3
90	4.50	5.5	5.5	6.1	5.8	5.8	6.9	5.9
94	4.70	5.7	5.7	6.4	6.0	6.1	7.2	6.2
98	4.90	6.0	6.0	6.6	6.3	6.4	7.5	6.4
100	5.00	6.1	6.1	6.8	6.4	6.5	7.7	6.6
104	5.20	6.3	6.3	7.0	6.7	6.8	8.0	6.8
108	5.40	6.6	6.6	7.3	6.9	7.0	8.3	7.1
110	5.50	6.7	6.7	7.4	7.1	7.1	8.5	7.2
114	5.70	7.0	7.0	7.7	7.3	7.4	8.8	7.5
118	5.90	7.2	7.2	8.0	7.6	7.7	9.1	7.8
120	6.00	7.3	7.3	8.1	7.7	7.8	9.2	7.9
124	6.20	7.6	7.6	8.4	7.9	8.1	9.5	8.2
126	6.30	7.7	7.7	8.5	8.1	8.2	9.7	8.3
130	6.50	7.9	7.9	8.8	8.3	8.4	10.0	8.6

Chart IV—Low Protein Feeds

Price per ton	Price per 100 Lbs.	Wheat midds. tdn* 80	Wheat bran tdn 70	Wheat tdn 84	Rye tdn 80	Barley tdn 79	Oats tdn 72	Kafir grain tdn 80	Corn shelled tdn 83	Corn & cob meal tdn 76
		Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.
$ 40	$2.00	2.5	2.9	2.4	2.5	2.5	2.8	2.5	2.4	2.6
50	2.50	3.1	3.6	3.0	3.1	3.2	3.5	3.1	3.0	3.3
54	2.70	3.4	3.9	3.2	3.4	3.4	3.8	3.4	3.3	3.6
58	2.90	3.6	4.1	3.5	3.6	3.7	4.0	3.6	3.5	3.8
60	3.00	3.8	4.3	3.6	3.8	3.8	4.2	3.8	3.6	3.9
64	3.20	4.0	4.6	3.8	4.0	4.1	4.4	4.0	3.9	4.2
68	3.40	4.3	4.9	4.0	4.3	4.3	4.7	4.3	4.1	4.5
70	3.50	4.4	5.0	4.2	4.4	4.4	4.9	4.4	4.2	4.6
74	3.70	4.6	5.3	4.4	4.6	4.7	5.1	4.6	4.5	4.9
78	3.90	4.9	5.6	4.6	4.9	4.9	5.4	4.9	4.7	5.1
80	4.00	5.0	5.7	4.8	5.0	5.1	5.6	5.0	4.8	5.3
84	4.20	5.3	6.0	5.0	5.3	5.3	5.8	5.3	5.1	5.5
88	4.40	5.5	6.3	5.2	5.5	5.6	6.1	5.5	5.3	5.8
90	4.50	5.6	6.4	5.4	5.6	5.7	6.3	5.6	5.4	5.9
94	4.70	5.9	6.7	5.6	5.9	5.9	6.5	5.9	5.7	6.2
98	4.90	6.1	7.0	5.8	6.1	6.2	6.8	6.1	5.9	6.4
100	5.00	6.3	7.1	6.0	6.3	6.3	6.9	6.3	6.0	6.6

*tdn—per cent of total nutrients that animal digests

well to remember that cows can make carbohydrates from proteins but not protein from carbohydrates.

Regardless of what feeds are purchased, it is well to remember that high protein feeds are usually compared for cheapness of protein, while low protein feeds are compared for cheapness of total digestible nutrients.

Using Cost Charts

The charts herewith illustrate how to compare the real cost of several feeds. Commercial feeds and some farm feeds are, of necessity, omitted. Further, this type of comparison cannot give full value to the supplementary effects of feeds or combination of feeds.

The cost of feed is easily computed. For example, in forming the bulk of the ration, if corn (shelled) is selling for $80 a ton, Chart IV shows that each pound of total digestible nutrients costs 4.8 cents. Whereas wheat, selling at $100 a ton, would furnish a pound of total digestible nutrients for 6.0 cents. In a similar manner, all the feeds in Chart IV can be compared, as they are all medium to low protein feeds and are usually put in the ration to furnish total digestible nutrients. It is well, however, in comparing these feeds to keep in mind the amount of digestible crude protein contained in each.

"The dentist mustn't have given you a very good fit."

Crude Protein on Tag

It might be well, at this point, to remember that crude protein always is given on the feed tag, whereas the true value of a feed should be figured on the digestible protein; that is, the portion of the crude protein that the animal digests. Comparing, again, shelled corn with wheat, Chart II will show us that with corn at $80 a ton, each pound of digestible protein costs 57 cents; whereas, wheat at $100 a ton will furnish a pound of digestible protein for 45 cents. Therefore, as a source of both protein and total digestible nutrients, wheat at $100 a ton is more economical than corn at $80.

In most cases farmers will find it economical to purchase a high protein supplement to add to their grain ration. This is especially true where low protein roughages are fed and where farm grown grains, such as oats, wheat, and corn, are relatively high in price. It may even be practical, in certain cases, to sell some of the farm grown grains and replace them in the ration with a high protein supplement.

In other words, as a source of protein these supplements furnish a pound of digestible protein at a much lower cost. Referring to Chart I we find that soybean oil meal, containing 38 per cent digestible protein and at $98 a ton, will furnish a pound of digestible protein at 12.9 cents per pound. Whereas with wheat (Chart II) containing 11 per cent digestible protein and selling at $100 a ton, each pound of digestible protein will cost 45 cents. By using these charts, a dairyman is able to substitute various feeds, based upon cost, and to obtain a cheaper ration without sacrificing quality.

The best way to use these cost charts is to find out from your local feed dealer the prices of the various concentrates and then determine which are the most economical sources of nutrients.

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80% of any calf starter is made of grain and protein oil meal. This you already have on your farm—in corn, oats and oil meal—or any palatable fitting feed. Just figure that cost plus the cost of SUPERSOL added at a level of 16% (1/6 of the total ration). SUPERSOL provides full amounts of all other nutrients needed by calves for optimum growth and health . . so, the cost of what you have plus the cost of SUPERSOL is your total cost. Compare and you'll find that this unexcelled SUPERSOL starter will cut your calf starter costs 50%!

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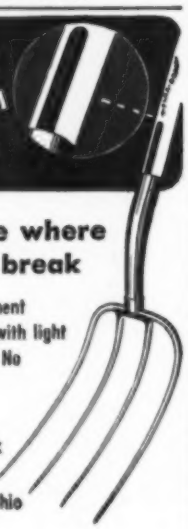
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Bulk Handling . . . . Is For The Family Farm, Too

(Continued from page 278)

it is leveled and then calibrated by filling with water in 5-gallon increments. A calibration chart is then made and then the readings in inches and fractions on this stick represent pounds of milk in the tank. A stainless steel measuring stick is supplied with the tank.

Milk cooled to 38°F. . . .

The milk is poured direct from the milking pail or transfer vessel into a strainer which fits into the lid of the tank. With normal milking rates, milk is cooled to approximately 38°F. within 30 minutes after completion of the milking operation.

The temperature is thermostatically controlled and the compressor and agitator are shut off when the milk reaches the desired temperature. The milk is then held over night with only a degree or two rise in temperature.

The morning milk is then strained directly into the night's milk. The bland temperature does not usually rise above 48°F. and again the milk is cooled to about 38°F. within about 30 minutes after the completion of the milking. Power consumption runs around 1/2 kw. for each ten gallons cooled.

The milk remains in the tank until the driver arrives for the pickup.

Truck tanks . . .

Various types and sizes of tank trucks are used. The selection depends upon local conditions such as road conditions, distance of farm from plant, accessibility of dairy houses, and the preference of the hauler. At Green Valley Farms in New Jersey, a 3,000-gallon, 2-compartment trailer tank is used. Guernsey milk is placed in one compartment and mixed herd milk in the other.

At Edisto Farms, South Carolina, a 2,000-gallon tractor trailer tank is used. At Keota, Iowa, a 2,000-gallon straight truck tank with tandem rear axle is used. This works very well under the difficult road conditions in Iowa.

In the Connecticut area, they are using in one place a 3,500-gallon tanker trailer which makes a 178-mile round trip and another route is using a 750-gallon tank truck. In the Maryland area 1,800-gallon straight truck tanks are used at present. This size of truck weighs about the same as the present can trucks and is able to reach the dairy houses under some difficult barnyard and lane conditions. When additional tanks are installed, it is planned to make two loads per day with these tank trucks.

About February 1, a 1,500-gallon tank truck will be operating within a 20-mile radius of Frederick, Md. It is planned to pick up three loads a day with this tank. A smaller tank is being used as there are some extremely bad lanes and roads to cover.

Receiving room on wheels . . .

The tanker trucks are supplied with compartments that hold the pumpout pump and sample trays. To transfer the milk from farm to tanker a Tygon plastic hose is used. The first step upon arriving at the farm is for the driver to check the milk for quality by checking the odor or, in some cases, actually tasting the milk.

The next step is to insert the calibration stick, a weigh slip in duplicate is made out, one being left with the producer. The agitator is then started and in the meantime the pumpout hose connection is made. When this is completed the milk is ready for sampling. Milk is then transferred to the tanker by the pump on the truck.

A cap is placed on the end of the hose, the tank rinsed out, and the driver is on his way. Total time at farms varies from 6 to 15 minutes, depending on size of tank, sampling, and other matters which may come up for discussion when the driver is at the farm.

Advantages to the farmer . . .

This system of milk handling obviously offers many advantages to the producer, hauler, and processor. The chief advantages to the producer are the following:

1. The elimination of the hard labor necessary when handling milk in cans.

2. It takes less time for the milking chore. Time is saved in the preparation of cans, strainers, and other equipment as well as the time necessary to check the filling of the milk can so that it does not run over.

3. Dairymen always lose a certain amount of their milk when it is handled in milk cans. This can loss is inevitable and the amount of loss varies, depending on the method of dumping the milk at the dairy and also the season of the year and the fat test of the milk. Besides the actual volume loss there is also the increased fat loss with the can system. The drippings collected from can washers at dairies will test on an average of from 6 to 7% fat. Therefore, these stickage losses show up both as a difference in weight and a lowering of the fat test as shown by records from the farm.

4. Thorough mixing of the milk in the farm tank assures a uniform fat sample. Present sampling from the weigh scale in the dairy is not always accurate.

5. With the sampling being done at the dairy farm, it is possible for the producer to keep a duplicate fat sample and have this check tested to compare with his test from the dairy.

6. Producers like the fact that they sell their milk in their own dairy house. From the readings on a calibrated measuring stick, they know the exact amount of milk which they are sending to the dairy. They are able to check this reading with the hauler if they so desire.

7. Bulk tank users report substantial savings in electric power costs for the milk cooling job. Reports of $1.50 to $6.24 per month have been made. This varies with the size of the dairy farm.

8. Where hired labor is used for the milking operation, owners report improvement in the attitude of these workers. The overall simplification of the milking chore is liked very much by the average dairy laborer.

9. The tank takes up much less room in the dairy house as well as eliminating the need for can storage space. It is, therefore, possible to increase production with the present milk house or, when building a new dairy house, it is possible to make a substantial savings in the construc-

tion cost of the new dairy house.

10. Producers everywhere report improvement in milk quality. Milk is cooled to 38° soon after milking. Bacteria just do not have an opportunity to grow. The average dairy with proper attention to milking utensils should be able to produce milk with counts consistently under 10,000. Many are producing milk under 5,000.

11. In a number of instances it has been possible to reduce the milk hauling rate. This, of course, depends upon local conditions. Deductions of from 4 cts. to 15 cts. per cwt. have been reported. In some cases where it was going to be necessary to increase hauling rates, the introduction of the bulk system made this unnecessary.

12. Milk can replacement is eliminated.

13. Some dairies have installed premium quality standards. With the bulk system it is easier to meet these lower bacteria requirements and thus qualify for these premiums. Bacteria samples are taken at the farm from the tank under most ideal conditions for the producer.

14. Accidental spillage of milk due to can runover or accidental upset when removing from the can cooler or loading into the truck or even at the dairy is eliminated.

15. A frequent criticism of can coolers by fieldmen is stagnant water as well as improper water levels. This problem is eliminated with the bulk system.

16. At certain seasons of the year, it is not uncommon to find milk in partially filled cans churned when it arrives at the dairy. This, of course, affects the butterfat tests. This is not a problem with the bulk system.

17. In the northern part of the country, it is common to receive milk on some days that is frozen to a considerable extent. The bulk system eliminates the possibility of wasted products and time due to frozen milk.

Advantages to the hauler are . . .

1. The milk hauling job is much easier. It is possible to use men of slight physical build as well as older men on this job.

2. A tank truck operating job is much more desirable as it is a much cleaner job.

3. It is possible to haul bigger pay loads and, in some cases, make two or three loads per day with the bulk system.

4. Where two men are used for can pickup, it is possible to save labor with the bulk system.

5. Where the every other day pickup system is used, it is possible to cover a greater area with one tank truck.

6. A stainless steel tank truck has a much longer life expectancy than the average can truck body.

Advantages to the dairy plant . . .

1. They receive better quality milk.

2. The milk arrives at the plant at approximately 40° F. which is colder than can milk. Therefore, it is possible to make a savings in raw milk cooling costs.

3. Receiving of milk in tank truck eliminates much of the labor in the receiving room which includes sampling, dumping, and cleaning. Can washing costs are also eliminated.

4. Where it is possible to receive all milk in bulk, it is possible to eliminate all receiving room equipment with a saving in space and investment in the necessary receiving equipment.

5. Receiving of milk in bulk simplifies inter-plant transfer of milk where this is necessary.

6. Where it is possible to pick milk up every other day, it is possible for the dairy to shut down operations completely and thus affect substantial savings in operating costs.

7. Sewage disposal is becoming an increasing problem with many dairies. The can washer is the chief offender and the elimination of this source of sewage is possible with the bulk system.

8. Installation of the farm tank removes the receiving room to the dairy farm. The resultant closer contact between the producer and the processor is advantageous to both parties.

Conclusion

Based upon present bulk route experience it appears that the bulk system will continue to grow. The economic advantages, as well as the fact that milk quality is improved, will make this system attractive to producer and processor alike. It would also appear that the every other day pickup system will gain widespread acceptance, particularly where smaller producers are involved.

Silver Creek Swiss Average $816

The February 6 dispersal of the Silver Creek Farms Brown Swiss herd owned by Henry and Arthur Duwe of Kansas was very successful. There was an excellent crowd in attendance and when the sale was over, the 42 head offered were purchased for an average of $816 by 23 buyers from Kansas, Oklahoma, Colorado, and Texas.

The top of the sale was a 7-year-old cow, Silver Creek R. D. Ester, sired by Duke Dan of Elmhurst. She was purchased for $1,350 by Earl Webber of Kansas. F. M. Webber, also of Kansas, took the second highest priced animal in the sale, Silver Creek W.L.C. Daisy, a very good three-year-old for $1,250. Clifford Hansen of Kansas was the heaviest buyer taking 8 head for $6,980. Howard A. Thomas, another Kansas breeder, took 4 head for $3,600.

The sale was managed by Norman E. Magnussen of Wisconsin with Fromm, Kueffner, and Cole doing the selling.

A bashful youth brought some roses for a girl. When he handed them to her, she threw her arms around him and kissed him. He then grabbed his hat.

"Oh, don't go," she said, as he made for the door, "I didn't mean to offend you."

"Oh, I'm not offended," he replied. "I'm going for more flowers."

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Even Mr. Thompson's son, Billy, is a Tubex booster. When asked if he used the syringe with Lentovet he said, "I sure do. It's a lot better than filling from the bottle. When Dad's away he figures I will give an injection the minute I spot trouble in the herd."

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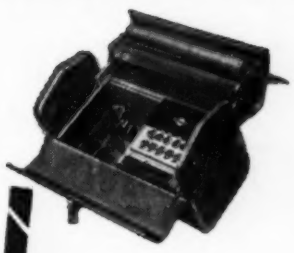

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DAIRYMAN

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US

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No Hard-To-Grow Vegetables

by J. A. Eliot

BEFORE discussing the so-called hard - to - grow vegetables, I want to make some suggestions about gardening that I believe will be helpful.

• Probably the best hand tool that a gardener can have is the Italian grading hoe.

• Fresh manure is better than the rotted kind if you keep it far enough from the plants to prevent burning. Seed can be safely sown where such manure has been plowed in.

• After plowing manure into a garden, the soil should be firmed well so that water will pass up through the manure and reach the plants. A plant gets its water from below.

• Mulching with manure is especially effective on r h u b a r b, vine crops, and asparagus. Those who can't get the natural manure will find that sheep manure, available at stores, is a splendid substitute.

To be sweet and tender, vegetables must grow fast and be picked young; this calls for good feeding, sufficient water, and thinning. A gardener is practically defeated right from the start if he hasn't water. My supply is a 10′ x 12′ cistern that holds a hundred barrels and serves also as fire protection. It is one of the best things I ever put on the farm.

As to thinning, a plant doesn't have a chance unless it has room. A snap bean, for instance, growing by itself, will produce 35 pods; in a row it produces about 7. This doesn't mean that beans shouldn't be grown in rows, but it illustrates the point.

Last year I left three watermelon vines in some of the hills and two in the others. The three-vine hills went all to blossoms and no fruit. The two-vine hills bore normally. The same thing happens with all vegetables, particularly limas. As to beets and carrots, unless you thin them out you get worthless roots. Now let's see what we can do about the so-called hard-to-grows; with each I shall try to explain how it can be easy.

Asparagus—Don't plant it in a trench; plant it at the surface, 18 inches apart each way. The crown should be about half an inch underground. If you plant it deep you are likely to smother the buds and kill it. After growth starts, cultivate for a month or so and then switch to the mulch system by covering the bed with fine manure an inch or two deep. The mulch must be maintained always but after the first application can be of any waste plant material except leaves; they will kill the plants.

This system requires only half as much room as a cultivated bed and produces better, because the seeds that the plants drop get a chance to grow and renew the bed as the old plants die. Hence the bed is always full of plants and always on full production. In a cultivated bed the cultivator kills these seedlings as they start; there is no renewal and the bed finally peters out.

Lima beans — These present two problems, getting the seed to start and getting the plants to bear. As to starting, bear in mind that once a seed gets wet and starts to swell it becomes a little plant and will die as soon as its supply of either water or air is shut off.

Air will go down through dry ground but not through more than an inch or so of damp ground, and not at all through wet ground. This means that in wet weather lima seed will rot unless enough soil is removed to let the air get at it, which generally means partially exposing the seed. When the weather turns dry, the soil has to be put back; planting the seed eye-down helps. As to getting the plants to bear, thin the pole varieties to three to a pole and the bush varieties to one foot between plants.

Snap beans—To get a good stand of plants, sow the seed in groups of 3 or 4 so that the germinating seeds can work together and break the crust; the groups should be about a foot apart.

Pole limas—Don't let the job of setting poles deter you from having these. Simply sow the bean groups on the corners of a four-foot square, place the butt of a pole on top of the ground at each group, and tie the four poles together, wigwam fashion, near the top; the bean plants will keep the butts of the poles in place.

Lima beans for cold climates—There is no true lima for cold climates but there is a splendid substitute called butter bean, or English butter bean, or White Dutch runner. Don't confuse it with the small southern butter bean called Sieva. This English butter bean is one of the most valuable beans in the country but most gardeners don't know about it.

Cauliflower—It's as easy to grow as cabbage if you don't plant it early; don't sow the seed until about the first of June and set the plants about the first of July.

Cucumbers—Feed them well and don't overcrowd; two vines to the hill, or a two-foot space between plants in the row is about right. They like water, and in hot weather shade them with a wide board laid on baskets.

Good summer lettuce—Sow it June first in a bed surrounded by wide boards standing on edge so that on hot days you can lay a screen over it; it needs shade; screen can be mosquito netting or lath, such as snow fence. Sow on August first for fall lettuce and throw a carpet over the frame on frosty nights.

Muskmelons and watermelons—These are easier than most gardeners think. Grow them like cucumbers but space them farther apart. Give water in dry spells and dust them for blight as with tomatoes. Use early and late varieties so as to have a succession. Iroquois is a splendid muskmelon and the refrigerator-size watermelons are particularly good and easy to grow.

Rhubarb—The trouble here is that people don't set enough plants and consequently the few that they have get picked to death. Plant a dozen or two, keep a mulch around them all the time, and pick only the center leaves; the plant needs the outside leaves to keep itself going.

Squash—The squash vine borer is the trouble maker here; the Butternut variety (don't confuse it with the Buttercup) is immune. Besides, it is splendid in other respects—tastes like sweet potatoes and keeps all winter. If other varieties are used, cut the borers out by carefully splitting the vines. This is easy and more dependable than insecticides.

Rutabagas and turnips—Remember that these are really big radishes—and, like the radish, will not make good roots unless thinned, and will be bitter and pithy if allowed to grow to full size.

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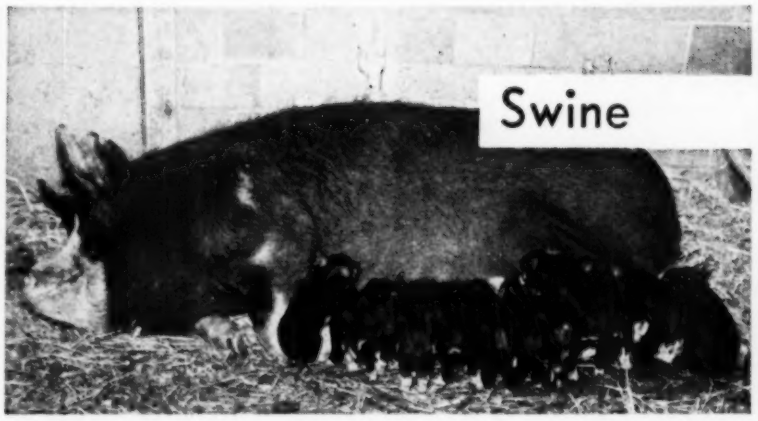

Swine

Why Earlier Farrowing and Marketing?

by J. J. Lacey

Why do you keep pounding away on the "earlier farrowings and earlier marketings" of pigs here in the Middle West? Our hog men know that pigs born in April and May live better and do better than the cold weather babies born two months earlier. Most farms are not fitted with the kind of hog house that late winter pigs need.

Late winter pigs cost too much to raise. I turn my April and May pigs out on grass when a few weeks old and they are little bother from there on. I couldn't do that with February pigs.

If you are raising pork merely to prevent "bother" to yourself, there's going to be no argument. Your system is O.K. But — I can't think that any hog farmer is in the business unless his goal is to make a little cash. If that's your objective, there's going to be a fine discussion between us, and may the best man win.

The months of November and December, 1951, offered the finest example of poor planning in hog production that the hog growers have seen in years and years. Receipts of pork were among the heaviest on record. Prices dropped from about $24.00 per hundred, top, in early September to near the $18.00 top in December.

This was a decline of $6.00 per hundred; or, on a 225-lb. hog it meant a lesser receipt of $13.50 per animal because he was sold three months too late. On a litter of eight pigs this same price slide would actually mean less money, by about $100, than the September price would bring. That's a big handicap for any sow to overcome by being more efficient, a handicap caused by poor farrowing dates.

And the year 1951 was but little different than average. In fact, 1950 was a trifle worse in spread between September and December. You may, if you care to, go back over price changes for a quarter century and find the same price drop in the early winter months because the hog "crop" has hit the market in numbers too large for slaughtering facilities to absorb.

To carry this story still further—neither the consumer nor the packer benefits by these price variations. The meat eater would like to set up a budget for meat and unless prices are known or at least can be anticipated, the extra supply of meat can do little good. Families on salary, with no provision for storing meat at home, cannot take advantage of meat bargains. Low level prices are always followed by higher ones, and the meat buyer realizes that in the long run his salary check will buy more meat for him if scarcities and surpluses never occur.

Even the livestock handling agencies deplore conditions such as we had in early winter. For the packer to build storage space for the low priced hogs would be too expensive on large scale. A very high percentage of pork moves into the trade in less than three weeks. Advertising costs, to "move" the surplus, run high. Labor becomes an item of expense. Unskilled labor must be hired, only to be released again when the receipts drop off.

Costs multiply through overtime and other factors, and no one connected with the industry is very happy over this distortion in business. Trucking and commission agencies find some of the same dislocation headaches. A steady supply and a steady outlet would be the wish of all concerned.

What have all these things got to do with your April and May farrowings?

Just this. It would be a safe bet that you and thousands of other hog growers who follow the late spring period of production did their bits to build that heavy surplus in November and December. Cash return was sacrificed for what you call "less bother." Was it worth it? You might have pretty nice extra income, at $100 more per litter, for a little more "bother."

Production studies and herd records do not indicate that losses in January and February pigs are unduly high. At the Wisconsin Experiment Station, analyses of herd records by Dr. Bohstedt have shown that the early farrowed pigs actually lived in better numbers and made better gains to weaning age than did the ones farrowed later. Only the pigs that live and go to market bring a cash return. The earlier pigs did that to better advantage.

Dr. Bohstedt offers as reasons for this, the better condition of the sows at earlier farrowing, the greater freedom from parasite and disease invasions because of low temperatures, and the possible earlier breeding of the sows that were best fitted for reproduction. Modern equipment has removed the risks of cold weather at farrowing time, and with the price incentive that is offered by late summer instead of late fall sale, the sound thinking hog grower has little use for your idea of shooting the works with April and May pigs.

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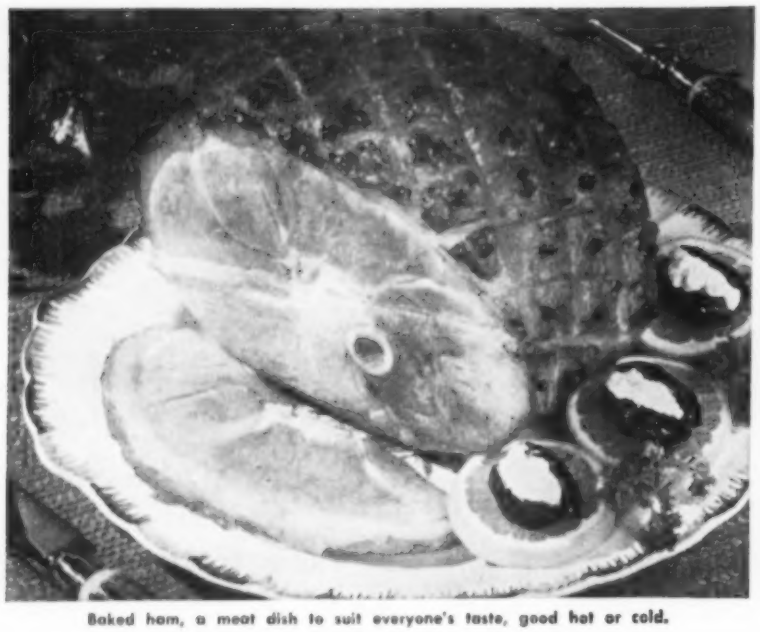
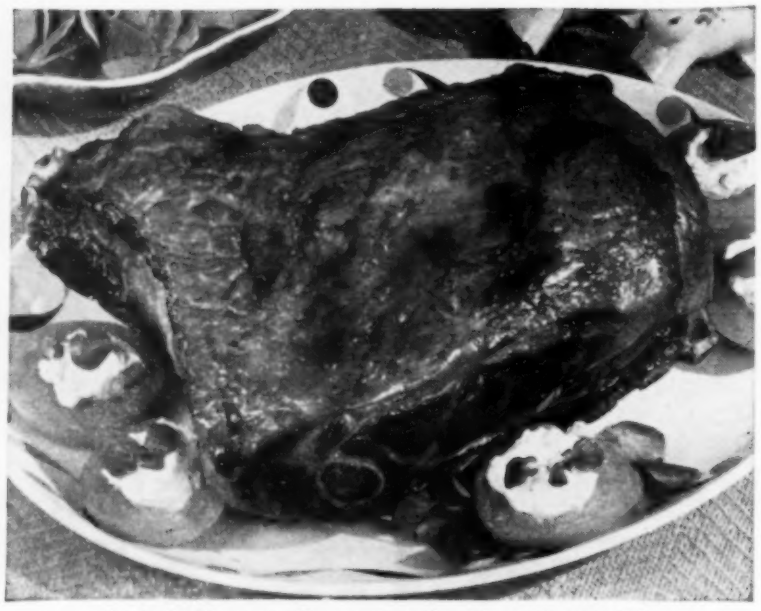


Baked ham, a meat dish to suit everyone's taste, good hot or cold.



Lamb shoulder roast—flavorsome, tender, juicy, and economical.

Ham and Lamb . . . Spring Specials

by Marian Pike

What will you have? Ham or lamb for your Easter feasting? How to cook it. How to serve it. How to use the left-overs.

IT HAS long been the custom to celebrate Easter and the coming of spring with feasting. In the old days, refrigeration and food preservation were primitive. So it was a real problem to know what to serve when the spring feast time rolled around. Butchering that had been done in the fall or winter was either eaten up or well past its prime.

But the old-timers got around that by burying fresh pork legs in the sand by the sea in anticipation of the Easter feast. Then these hams, cured by the action of the salt water, would be dug up and smoked over wood fires. The cave men hung pork legs at the tops of their caves where they absorbed the smoke flavor.

We've come a long way since those days, but we still use ham as a traditional meat dish at Eastertime. Some of us, though, think of lamb as the proper Easter meat, as do the peoples of Bulgaria, Italy, and England.

Did You Say Ham?

Many of us butcher our own pork at home or at the locker plant. But sometimes we do buy ham, and then we find quite a variety of ways in which it is offered: uncooked or ready-to-eat (cooked); whole, half, or by the slice; ham in cans and chopped ham.

Smoked picnics are usually a good buy. There is more waste than with ham, but the price per pound is quite a bit less. Ham in any form is generally economical for serving a crowd because it goes so far. Ham leftovers come in handy for sandwiches, late snacks, and tasty casserole dishes. Leftover ham can be wrapped and put in your freezer until you "feel like" ham again. Save space by cutting meat from bone.

Smoked meats should be as carefully refrigerated as fresh meat. Smoked hams and bacon should be used within a week. Once the ham is cooked, it should be refrigerated, too, tightly wrapped in waxed paper or aluminum foil.

Here are some ways to use leftover ham:

Slice and use for hot or cold sandwiches. Heat slices in a raisin or cream sauce or in a condensed soup.

Cube and use in casseroles with noodles, spaghetti, macaroni, or mixed vegetables. Cube and add to cream sauce with pimiento or mushrooms and serve over toast, biscuits, or rice. Fold diced ham into omelettes. Use in a main-dish salad.

Grind and mix with mayonnaise and relishes for sandwich fillings. Use ground with part fresh meat for a ham loaf. Use in stuffed green peppers or cabbage rolls. Spread on biscuit dough, roll up and bake, then serve with a cheese sauce.

Baking the Ham

The mild manner in which hams are smoked today has pretty well outmoded the cooking of ham in water. Ham should be baked at a moderately low oven temperature of 325° F., as higher temperatures cause smoking of the fat.

Whole hams require 18-23 minutes per pound; the shorter time being for hams from which chill has been removed. Bake a half ham (chilled from the refrigerator) 27 minutes per pound. Reheat cooked, ready-to-eat hams for 10 to 15 minutes per pound.

Half an hour before end of baking period, score fat, stick with whole cloves and glaze with honey, apricot jam, brown sugar moistened with a little fruit juice, or red jelly thinned with hot water. Finish baking at 325° F., basting frequently.

The garnish shown in the baked ham picture is cheese-stuffed prunes on orange slices, with parsley as the greenery.

Why Not Try Lamb?

Lamb is a meat which in many parts of the United States does not enjoy the popularity it really deserves. When we do buy lamb, we usually ask for chops or for a leg of lamb. These are good, of course, but a shoulder roast of lamb, as shown above, is just as flavorsome, tender, and juicy as a leg of lamb, yet it is a somewhat more economical buy. Here it is garnished with apricot halves stuffed with cream cheese and topped with sprigs of watercress.

Dairy Farm Home

Lamb shoulder roast, like leg of lamb or a crown roast, should be cooked on a rack in an open roasting pan, preferably one just a little larger than the roast. You can buy a shoulder roast with the bone in, as shown, or one that is boned and rolled. If you get a boned shoulder, ask your meat-man to leave a pocket for stuffing. Then stuff loosely with whatever basic bread dressing you prefer. You can vary it by adding chopped celery, apples, cooked prunes, or apricots. Or you may season the dressing with sage, poultry seasoning, or chopped fresh mint leaves.

Roasting Lamb

All lamb roasting should be done at a low temperature of 325° F. A leg will take 30-40 minutes per pound; a crown roast, 45 minutes per pound; a shoulder roast with the bone in, 35 minutes per pound; a boned and rolled shoulder, 40 minutes per pound. Your meat thermometer will register 182° F. when the meat is well done. If you prefer the leg only medium, 175° F. will be the internal temperature. If you do use a meat thermometer be careful to insert it through the outside fat into the center of the thickest muscle, and do not allow the bulb to rest on bone or fat.

Whichever type of lamb roast you choose, wipe the meat with a clean, damp cloth, then season with salt and pepper. Place roast, fat side up, on a rack in an open roasting pan. Do not add water, do not cover, do not baste. Roast in a preheated moderately low oven.

Loin, rib, and shoulder chops all may be broiled, though you may prefer to fry or braise the shoulder chops. Ground lamb patties may also be broiled or fried. A lamb meat loaf is made like any other meat loaf.

Braising and Stewing

The cheaper per pound, bonier types of lamb, like neck slices, shanks or stew meat, must be braised or simmered in liquid.

To braise, brown the meat in a little hot fat, then add a small amount of liquid. Cook slowly to tenderness in a covered utensil. To simmer in liquid, cover meat (browned or unbrowned) with hot water, season and cook over low heat at a simmering temperature until tender.

Currying Lamb

Lamb curry is a great favorite with those who have developed a taste for it. There are many hot arguments among gourmets about the best way to prepare it and the proper accompaniments for it. This recipe serves four or five:

Cube **1½-pound lamb stew meat** and brown in a little hot fat.

Add **½ cup chopped onions; 1 tart apple, chopped; 1½ teaspoons salt; ⅛ teaspoon pepper; 1 teaspoon curry powder; ½ teaspoon ginger; 1 teaspoon sugar; 2 cups bouillon or water.**

Cover and cook gently one hour. Thicken, if desired, with a flour and water paste made of 2 tablespoons flour mixed into ¼ cup water.

If desired, add ¼ cup raisins. Cook 15 minutes longer.

Serve over hot boiled rice and sprinkle with coconut or chopped nuts.

Nice to serve with curry: green lima beans, cabbage and pineapple slaw, banana cream pie.

THE END

From Day To Day

by Lois J. Hurley

"To Papa from Lilibet" read the card on the wreath of flowers that Queen Elizabeth the Second placed on the coffin of her father, late King George of England. No dignified term or title but a return to the endearing names by which each knew the other in the precious years before historic duty claimed them.

In this simple inscription royalty reflected the deep urge we all have to grasp and cling to the memories that were most dear in those last few moments we spend with loved ones.

* * *

I read of the death of King George and the flight home of Elizabeth to be proclaimed queen as I rode home on the train from Madison, where I had spent three days at Wisconsin's Farm and Home Week.

Laying aside the paper and looking out over the gray, wintry landscape through which we were speeding, I meditated rather idly over events of the past three days and started to sort out impressions I thought were important. Suddenly I found myself running up against a central theme that had repeated itself in several programs, through the voices of several speakers and the thinking of many persons I'd talked with.

A theme I'd never felt so strongly emphasized before at like meetings, running something like this: We're at the top of the pile on material things but running dangerously low on some of the values and virtues that have made us and our nation great.

* * *

J. O. Christianson, of the University of Minnesota, said it in his general assembly speech: Rediscovering America.

"If we are loyal to what we know is wise and best, we need have no fear for the future," he said, in part of a splendid address. "There are five roots to a strong plant of society and where those roots are deep, nations and peoples re-build and grow and endure. They are home, church, school, moral stability of people, and the rights of private ownership.

"Listen to what the centuries say," he cautioned. "Give greater strength to the dream we know as America and build up faith to preserve liberty and bring peace to the world."

* * *

A March of Time movie . . . Man in the 20th Century . . . showed us as confused and fearful creatures from whom the future is hidden away and in which science may become our master and not our servant. Following that, Dr. W. P. Kleinpeil, president of the River Falls State College, drew a parallel picture of confusion in the home community through the influences of world conflict.

"In this age of anxiety," he said, "we need to keep before us the things that make up a good community. First is a base of economic stability; next comes a strong sense of community loyalty. Then, the people must have a constructive approach to their problems and see the community as a whole and not just parts."

* * *

I'm not ready to conclude that our lives are weighted down with emotional strain and society may go to pot at any moment, though the last meeting I attended was a panel on what communities can do to relieve such strain. But the complexities of modern living do affect our society and maybe the old rules of hard work, good neighborliness, respect for God, common sense, fresh air, and plain, hearty food no longer form the bulwark of well-being and the sense of security they once did.

The modern conveniences our know-how skills have given us have smoothed out our living but tangled up our lives. And as Molly says on the radio to Fibber: "'Tain't good, McGee!"

Custards Easy to Make

Custards can help increase the milk intake; this is especially important for members of the family who find it hard to drink their daily quota of milk, says Janina M. Czajkowski, extension nutritionist, Connecticut College of Agriculture. We all know that unless milk is included in daily meals it is difficult to secure enough calcium to meet body needs.

Custard is not hard to make, but the rule of low temperature must be followed if a smooth product is to result. Soft custard needs to be cooked in the top part of a double boiler over water that is slightly below the boiling point (the point at which tiny bubbles rise and break on the surface). If the water in the bottom of the double boiler is at a rolling boil, the custard may curdle.

Baked custard needs to go in a slow oven and the custard cups set in a pan of hot water. If baked at too high a temperature or for too long a time custard will "weep". Following is a reliable recipe for custard:

3 whole eggs or 6 egg yolks
¼ teaspoon salt
4 tablespoons sugar
2 cups milk
Vanilla flavoring (to taste)

Soft custard: Blend the eggs or egg yolks, the salt and the sugar. Scald the milk in the top of a double boiler and pour it slowly over the egg mixture, stirring constantly. Return to double boiler and cook over hot water until mixture coats spoon. Remove top of double boiler from hot water immediately to prevent further cooking. Add the flavoring. Chill thoroughly. Pour over strawberries or other fruit just before serving.

Baked custard: Blend eggs or egg yolks, salt, and sugar. (Do not beat the eggs; the incorporated air may make a porous custard.) Scald the milk and pour it slowly over the egg mixture, stirring constantly. Strain. Add vanilla. Pour into custard cups. Place cups in a pan and fill pan with hot water to within an inch of the top of the cups. Bake in a slow oven (325° F.) for 45 to 60 minutes, until a silver knife inserted in the center comes out clean. Remove from hot water immediately. Chill and serve plain, with crushed sweetened strawberries, or with other fruit — fresh, canned, or frozen.

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2454. This sunshine season hat can be quickly made with open or closed crown, with or without scarf. Cut in one size, adaptable to any head. Open crown hat, ⅝ yd. 35-in.; closed crown, ¾ yd. 35-in. Tie, 1⅛ yds. 39-in.

2224. Slimming panel lines, brief ruffled sleeves, band trim—all three contribute youthful charm to a cotton that's a sewing time-saver. Sizes 12-20, 36-46. Size 18, 3⅞ yds. 35-in., and 4½ yds. rickrack.

2254. Designed to favor the half-size figure, this dress combines simplicity with soft cape sleeves, six-gore skirt, shoulder pleats. Half-sizes only, 14½, 16½, 18½, 20½, 22½, 24½. Size 16½, 3⅜ yds. 39-in.

2124. One pattern makes daughter a sturdy playsuit for sun fun, and matching ruffle-sleeve dress that's easy to don for the street! Sizes 1, 2, 3, and 4. Size 2, dress and suit, 2½ yds. 35-in., 2⅞ yds. rickrack.

2574. Sew this pocket-skirt in corduroy or wool, cool denim or sailcloth; companion blouse (with sleeve choice) in rayon, in check, plaid or plain cotton. Sizes 9-19. Size 13 skirt, 1¾ yds. 54-in. Blouse, 2 yds. 35-in.

460. Seventy-two inches of "hearts" in this multi-color transfer which requires no embroidering! Rose-pink and blue heart banding is 1½ inches across, lovely on dainty aprons, children's pinafores, guest towels, dresser scarves, vanity sets, bedroom curtains, delicate organdy tea cloths.

2613. Shoulder pleats, six-gore skirt make this notched collar casual much more flattering than most shirtwaist fashions! Long sleeve coat-dress version is included. Sizes 12-20, 36-48. Size 18, 5⅛ yds. 35-in.

2407. "Versatile" is the word for this soft cap sleeve basic—witness the shawl collar bolero which can be quickly donned for street scenes! Sizes 12-20, 36-44. Size 18, 5¼ yds. 39-in. Braid trim is optional.

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Also send 25 cents for our New Spring-Summer Fashion Book that's just out.

"Snap for" Canned Green Beans

A spring tonic — canned beans with a "new look." Try these variations. Your family will enjoy the change.

by Susan B. Merrow

SNAP beans again? I wish we could have something different once in awhile. Didn't you can anything else last summer?

Mrs. Housewife agrees she has been serving snap beans fairly often. She thinks of all the jars left on the shelf and wonders what to do with them. It wasn't much fun canning during those hot days last summer but snap beans were plentiful. Canning seemed a good way to save money, provide variety and good nutrition for winter meals, but something has gone wrong. The family is objecting.

It happens in many households—perhaps even in your own. Do not be discouraged. Of course it was worth while to can snap beans last summer. There is a lot of eating pleasure and good nutrition in those jars. It is just that almost any food loses its appeal if served in the same form too often.

Remember, too, that snap beans lose vitamins, color, flavor, aroma, and change texture during storage. You can prevent some of these losses by keeping them in a cool, dark place. However, it is a good plan to use them up before the next year's crop is ready for canning. Try some of these new ways of serving snap beans and see if they won't win a popularity contest at your dinner table.

For something simple yet different, sauté chopped onion until golden brown; then pour the fat and onion over the drained, heated beans. Add fried, crisp salt pork or bacon for another variation.

How about a sauce? White sauce seasoned with pimento and a dash of nutmeg, a cheese or tomato sauce add a new zest.

This sweet-sour sauce is a favorite in many families:

Sweet-Sour Sauce

½ cup fat
½ cup vinegar
½ cup brown sugar
1 teaspoon salt
¼ teaspoon pepper
¼ teaspoon nutmeg

Melt fat. Add vinegar, sugar, salt, pepper, and nutmeg. Pour over drained snap beans. Heat thoroughly and serve.

It takes but a few minutes to melt 4 tablespoons fat, add ½ teaspoon sugar, ½ teaspoon lemon juice, ¼ teaspoon dry mustard, and you have still another enhancing sauce.

For eye appeal, add ½ cup coarsely grated carrot to the snap beans when heating them.

Did you know that during canning and storage many food nutrients become dissolved in the liquid? Chemical analyses have shown that as much as and possibly even more than one-fourth of the riboflavin and one-third of the ascorbic acid and thiamine in the jar may be in this liquid. Serve the liquid with the beans and use it in soups, sauces, gravies, and vegetable cocktails to get all the flavor and food value stored in the jar.

Canned snap beans combine well in made dishes.

Vegetable-Meat Loaf

½ cup rolled oats, uncooked
1 small onion, chopped
2 cups snap beans, canned
1½ lbs. ground beef
1 tablespoon fat
2 teaspoons salt
1 cup liquid from beans

Heat liquid from beans to boiling. Add rolled oats gradually, stir constantly, and boil for 3 minutes. Melt fat. Add onion and brown. Add snap beans, ground beef, salt, and cooked rolled oats. Place in greased baking dish and bake in moderate oven 1½ hours. Serves 6.

Hot Vegetable Casserole

2 cups snap beans, canned
1 medium onion, sliced
1 cup tomatoes, canned
½ cup liquid from beans
2 tablespoons salad oil
Salt
Paprika

Place snap beans and liquid in a baking dish. Spread with sliced onions. Cover with tomatoes. Add salad oil, salt, paprika. Cover and cook slowly for 1 hour. Diced meat may be added if desired. Serves 6.

For that "New Look", add snap beans to your favorite stew. This new stew makes hearty, good eating.

New Stew

1 lb. stewing beef, lamb, or veal
4 tablespoons flour
4 tablespoons fat
2 medium onions
1 teaspoon green pepper, chopped
1 pint jar tomatoes, canned
1 cup water
1 teaspoon salt
1 pint jar snap beans, canned

Cut meat in cubes and dredge lightly with flour. Brown in fat. Add sliced onions and green pepper, cooking slowly for 5 minutes. Add tomatoes and water and let simmer for 45 minutes. Add salt, snap beans and their liquid, and simmer 15 minutes. Serves 6.

Here is an idea for a tangy vegetable salad or sandwich filling:

Tangy Vegetable Salad

1 cup snap beans, canned
2½ tablespoons pickle relish
¼ teaspoon minced onion
3 tablespoons grated cheese

Chop beans. Add relish, onion, and cheese. Mix and serve on crisp lettuce leaves or spread on buttered bread.

A spring tonic for spring meals. Add "snap" to your canned green beans. Good food provides good eating enjoyment and promotes good health. Serve your family double-good, canned snap beans.

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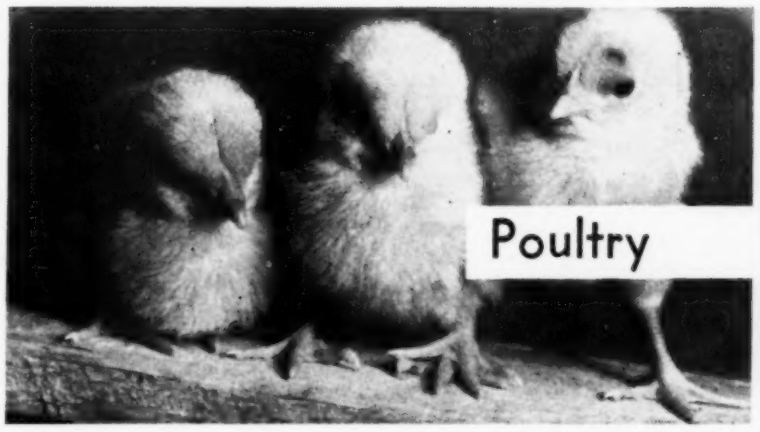

Poultry

Free-Choice Feeding of High Producing Layers

by H. H. Alp

THIS method of feeding production flocks is, of course, not a new one, but one that has been used commonly among poultrymen. On the whole, the results obtained from this method of feeding have been quite satisfactory and it is interesting to note in recent studies made at the University of Massachusetts that the protein level of the mash used under the free-choice system is quite important.

"**A 13 Per Cent Protein Level.** All stock has been self-fed free-choice both on the growing range and in the laying houses. Up to July, 1950, laying birds received a standard 20 per cent protein laying mash,—38-pound whole oats and whole yellow corn each supplied free-choice at all times. There have been some minor fluctuations in the proportions of these feeds that were consumed as has been observed by others. On the average, however, laying pullets in their first year have consumed 30 per cent mash, 30 per cent whole corn, and 40 per cent whole oats. This would make their total protein intake about 13 per cent.

"In the light of recent findings, it seems apparent that these birds do not consume sufficient mash to furnish essential vitamins, minerals, and protein to support very high egg production. It seems probable that inadequate nutrition has become a limiting factor in egg production under this system of feeding.

"**Protein Level Increased.** In the fall of 1950 all pullets housed, as well as older breeding stock, were given a concentrated mash carrying 30 per cent protein in place of a standard mash with 20 per cent protein used for previous generations. No other change was made in the ration. All birds were fed whole yellow corn, whole 38-pound oats, and 30 per cent mash free-choice at all times. It seemed probable that the birds would continue to eat about 30 per cent of mash on the average.

"So far there have been no significant changes in the proportions of the three feeds consumed since the mash was changed. With no change in habits of eating, the birds will now receive between 16 and 17 per cent total protein and they should be getting adequate amounts of vitamins and minerals.

"**Observed Effects of New Mash.** The first generation of pullets fed this high protein mash will finish their first laying year about November first. Unfortunately there was an outbreak of bluecomb disease in the 1950 pullets which forced their winter production down. Production previous to the outbreak and following recovery indicates a significantly higher level of egg laying for this last generation.

"Mortality in this last flock has been lower despite the outbreak of bluecomb disease. Autopsy records on dead birds appear to show less evidence of nutritional disturbances than have appeared in previous generations.

"**Definite Improvement Noticed.** Fertility was greatly improved by the new mash. Average fertility in all pens for the five years previous to 1951 was 83 per cent. The fertility in 1951 was 90 per cent, all under pedigree breeding. The percentage of fertile eggs hatched in the previous five-year period was 77, while the hatchability of the 1951 pens was 86 per cent. It is logical to assume that improved nutrition was operating to improve fertility and, to a greater extent, to raise the percentage of fertile eggs that hatch.

"Mortality in chicks was also reduced so that the total mortality from hatching to five months of age in 1951 was about 6 per cent compared with about 10 per cent for previous years. Pullets housed this fall also appear to be a superior group as judged by physical appearance.

"In summing up our observations to date on the efficiency of free-choice feeding of grain and mash to high producing Rhode Island Reds, there are several matters of importance. Free-choice feeding of whole heavy oats, whole corn, and 20 per cent protein laying mash has not been satisfactory for a flock averaging to lay 230 eggs in the pullet year. There was evidence of malnutrition in many of the birds that died and the mortality rate was rather excessive. In five generations of selective breeding it was impossible to raise the production level of the flock. Both fertility and hatchability were lower than was expected.

"Through the substitution of 30 per cent mash concentrate for the 20 per cent mash there has been a significant increase in egg production and a lowering of mortality, and less of malnutrition. Both fertility and hatchability were increased to a new high level. On the whole this method of feeding offers promise for heavy layers since it is more labor saving and more sanitary than litter feeding."

It Kills Me—but I Love it!

Nearly all leading rodenticides today contain *warfarin*...because *warfarin* is the *most effective rat and mouse killer* known to science.

When you buy any rodenticide it will pay you to be sure it contains *warfarin*. Look for it under different brand names (complete or in form ready to mix) at drug, hardware, feed, seed, department stores.

Use warfarin *first* for protection that will *last*.

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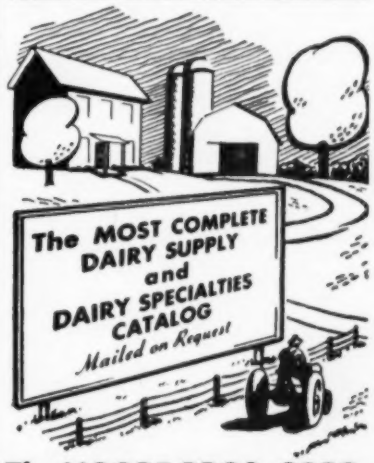

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Young Dairymen

You may find you are milking cows just for the "fun" of it. If a cow isn't worth testing then she isn't worth milking.

Roy Meier, Henry Meyers, and Ray Meier testing their home herds in the Monroe, Wis., Junior Dairy Herd Improvement Association laboratory.

Let's Test The Home Herd

OUR slogan is, "If a cow isn't worth testing, she isn't worth milking." If you are in a vocational agriculture department, it's easy to test your dairy herd. Successful dairy farmers know that testing is a "must" in building a profitable, money-making herd.

Testing milk and why it works can best be expressed by telling about a young farmer, we shall name John Jones, who operated his dad's farm in Southern Wisconsin. John's dad has been sick and unable to do farm work for years so John has been doing all the work. John's herd of 21 cows has a 348-pound herd average.

But, five years ago, John was a freshman in high school. The herd averaged only 216 lbs. fat. At the end of his first year's testing, John talked over the herd average with his Ag teacher. There were 14 cows with less than 200 lbs. fat in a herd of 46.

Sold 14 head . . .

John's teacher said, "You know, you get up at 4 o'clock every morning to feed, milk, and haul the manure to the field before you come to school. After classes you race home, go through the same chores, and end up dead tired at 8:30 every night. Why don't you take this herd average to your dad and show him that these 14 cull cows aren't paying for the cost of keeping them?"

Monday morning John came in the Ag room grinning from ear to ear. He announced, "Dad called the local trucker and we loaded out all 14 cull cows!"

Today John Jones has a profitable herd. His choretime is one-half what it was when he was a freshman thanks to the Babcock tester and his Ag teacher.

How would you like to invest $8.00 per year plus two hours per month and get a return of over $2,000? It sounds pretty simple, doesn't it? Basically, however, if you have 20 milk cows, that is the return that you might reasonably expect from your investment in belonging to a Junior Dairy Herd Improvement Association.

Last year the average American dairy cow produced 5,000 lbs. milk. Twenty such cows returned their owners $2,720 over feed costs. The average DHIA cow produced 9,000 lbs. milk and 20 of these cows returned their owner $4,940 over feed costs. That is a difference of $2,220.

Let us analyze milk testing on two other farms in Southern Wisconsin. One has 92 cows and the other has 16 cows. After we checked the records, we found they both netted a $4,000 profit. Just think, 92 cows to milk every morning and night. If you went down to your barn and opened the barn door and looked down that 175-foot barn with cows on each side, you would feel like going back to the house, but if you go to the barn and find 16 good cows you feel more like tackling the job.

The herd average was 245 lbs. fat for the 92 cows and 452 lbs. for the 16 cows. Production per cow spells profit per cow.

16 cows can be more profitable . . .

Imagine the first farmer and his two sons milking 76 cows for fun! Yes, we say, "for fun." We do believe if they could take a closer inventory of themselves, they would be inclined to cut this herd down and keep only the good cows.

Work never hurt anyone, yet we don't want to kill ourselves pitching down tons of hay and silage for 92 cows every morning and night just for the fun of flexing our muscles. Yes, the manure to load out every morning, all for the pleasure of hauling it out in the field, planting another crop, harvesting and running it through the cow next year for more manure. That's a vicious cycle. Maybe you just want to keep busy.

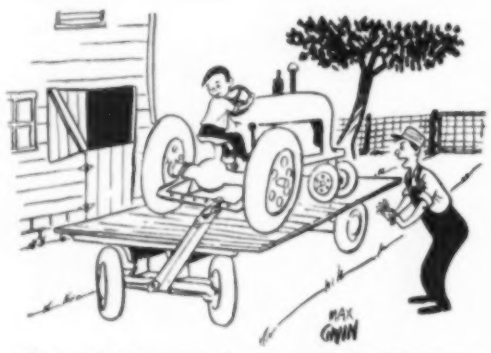
Let's put it another way. If you want to earn $5,000 a year over feed costs, you will have to milk 20 good DHIA cows or 37 average U. S. dairy cows. In other words, thousands of young farmers are milking those 17 cows purely for the joy of milking.

Reasons for testing . . .

1. **Find out the production of each cow:**
   Elsie— 10,000 lbs. milk 3.5% test 350 lbs. fat
   Bessie— 7,000 lbs. milk 3.0% test 210 lbs. fat
2. **Cull out all low producers:**
   Sell Bessie to the butcher. Good dairy farmers say, "Sell all cows that don't produce 300 lbs. fat."
3. **Feed according to production:**
   One pound of hay for every 100 lbs. of live weight. Three pounds silage for every 100 lbs. of live weight. If no silage, two pounds hay for every 100 lbs. of live weight. One pound of concentrate for every 3-4 pounds of milk produced daily. (This should serve as a guide, not a rule.)
4. **Raise heifers from good cows:**
   Heifers will be your future herd; let's pick out heifers that will produce more than their dams.
5. **Prove sire's ability to transmit:**
   If the heifers' production records are higher than their dams, there is only one answer for the increase. The sire was able to transmit higher production to this offspring than was transmitted from the cows. This assumes that feeding and care were approximately the same when the cows and the heifers made their records.
6. **Cows, heifers, and bulls are worth more:**
   Local cow buyers are getting orders every day —please line up six heifers or six cows. We will pay $350 for yearling heifers from dams with over 400 lbs. fat and $600 for cows with over 400 lbs. fat.
7. **Develop more interest in home herd:**
   Because you are testing every month, you begin to appreciate each cow in the herd. You talk over the records with your folks. When all of you become interested in records you're on your way to building a profitable herd.
8. **Increase herd average to 400 lbs. fat:**
   No one knows until they test their herd, but there are cows producing 400 lbs. fat in a large number of herds. With good feeding and care more cows in the herd can be brought up to that level. It takes years to develop a high herd average, but keep improving through a sound testing program.
9. **Fewer good cows equal more profit:**
   Your unit of profit starts at 200 lbs. fat and for each pound above that level, the farmer is making more dollars and cents. One 400-lb. fat cow is equal to the profit made from five 250-lb. cows.
10. **More profit with less work:**
    It takes less hard work to care for, feed, and milk a 400-lb. fat cow as compared to four 250-lb. fat cows. Labor is the most costly item on the book today. Let's cut it down to a minimum and have a few good profit making cows.

Tell your agriculture teacher tomorrow, "I would like to start testing our herd today."

THE END



"You get into some of the worst predicaments when you try to back up.

Building Our Herd The 4-H Club Way

How our herd has grown from two heifers to a herd of 20 — a good start for a dairy farm.

by Richard G. Benne

Max with Elsie (Milsons Bennbros Ormsby Naboth Gem) who was invited to show at state 4-H club fair 3 different years.

IN 1946 my brother Max and I bought two registered Holstein heifers to use as 4-H club projects. That started us in the dairy business, and we now have 20 dairy animals, 11 cows, 3 yearling heifers and 6 calves, all registered or eligible for registry except one old cow and her calf.

I am now 19 years old and a sophomore in pre-veterinary medicine at Michigan State College. Max, who is 15 years old, is a junior in high school. The milk we produce is sold to the college dairy, and we are using the income from it to pay our school expenses and to increase the size of our herd.

In 1951 we sold 103,471 lbs. milk for $4,447.83, plus $2,795.82 for 13 cattle, bull calves, and cull cows. However, we bought four bred heifers, which took a big share of the money we received for the cattle.

Our parents aren't primarily farmers, so it hasn't been a case of my brother and me carrying on with an established herd. There wasn't a cow on the place when we started. My father is a research professor in the agricultural experiment station at Michigan State College, but both he and my mother were raised on farms. Since they thought a farm was the best place to raise boys, they bought a small one not far from the college.

Started with no machinery . . .

When we moved to the farm, my parents owned no machinery and my father had no time to farm, so they rented the land to neighboring farmers. Gradually, however, we began to acquire some machinery, and as soon as Max and I were able we bought some of our own. We now own a Ford tractor and a number of other machines, including a plow, a mower, a cultipacker, a manure spreader, and a manure loader. My parents have a tractor and some other machines so this gives us access to a fairly complete line of equipment.

We raise our own feed . . .

For the past couple of years we have not only farmed our own place but some rented land as well. We have managed to do some custom work for the neighbors in our spare time.

It keeps us busy trying to raise feed enough for our animals. During the summer we use mixed legume and grass pasture, supplemented later in the season by sudan grass pasture. Luckily, the past two seasons have been very good pasture years in our area.

We do not have a silo as yet, so we are forced to rely principally on hay for winter roughage, and it isn't easy to make good hay in Michigan. First cuttings are usually coarse, and it seems all that is needed to bring rain any time during the season is to cut down some hay. However, we keep trying and occasionally we succeed in getting some hay in the barn in A-1 condition. Bright green leafy hay is the kind we like to roll into the manger when the snow is blowing outside and the temperature is below zero.

Several of the farmers in our neighborhood are older men who are glad to have their hay put up on the share basis. This has helped us to keep expenses down by trading labor for a share of the hay.

Fortunately during the past two years we have been able to raise enough oats and corn to feed our herd through. Of course, we had to supplement these grains with protein concentrates and minerals, but the cast of these is minor compared to what the cost of the whole ration would be. We live only a short distance from a grain elevator that grinds and mixes feed on a custom basis which makes it handy for us.

Breeding our cows artificially . . .

Our cows are being bred artificially and the semen is being obtained at the bull stud of the Michigan Artificial Breeders Association located at East Lansing, only a few miles from our home, so we have been able to visit it frequently and observe the bulls and the methods of handling them.

One of our first heifers from artificial insemination is in production now and is doing well. We have three more that should freshen within the next year, if everything goes as it should.

In 1950 we bought Ona Sylvia Lady Bold, that was raised in the Steinacher herd, Michigan. She is the daughter of Rainbow Captain Bold 3rd that sired Captain Rainbow Topsy, also raised by the Steinachers and holder of a world production record of 1094 lbs. fat as a three-year-old.

Last year we bred Sylvia to Shiawana Mutual Paul, one of the gold medal sires of the bull stud, and were lucky enough to get a heifer calf. In fact, we now have three heifer calves from this sire and a lot of our future hopes are pinned on them.

The Holstein-Friesian Association of America has reserved the prefix name "Bennbros" for our herd. Max and I have formed a partnership and would like some day to see our prefix in the names of some outstanding animals.

Had to make 8 o'clock class . . .

We do our milking with two portable milkers. Using two units has shortened our milking time considerably, and this is very important, especially when we have to make an eight o'clock class every morning. We belong to one of the local milk testing associations, and we eagerly study the monthly reports of the tester to see how the herd is doing.

Trying to establish and maintain our little dairy herd has taken a lot of time, study, and effort, but we have had a great deal of help for which we are grateful. Our parents have worked with us on the project and have helped us over the financial rough spots.

Good advice has helped us . . .

Our genial county 4-H club leader, Mr. M. H. Avery, who with his family lives on a farm only about a mile from our place, has aided us with many valuable suggestions and good advice. We are also indebted to our local and state club leaders for painstaking instruction and timely encouragement.

As you can all readily guess we have had our share of troubles and our hourly rate of pay has been low at times; however, dairying and school work are a natural combination and have permitted us to use hours in the day when other kinds of employment might not have been available. We have been "our own boss" and have had fun making our own decisions for carrying out our own plans. **THE END**

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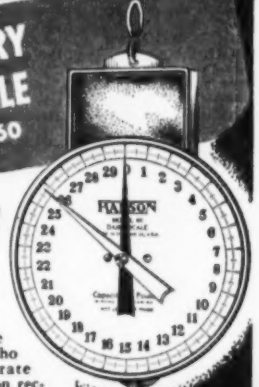

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Weed out non-producers

Here is the scale for the dairy farmer who requires accurate milk production records. Has extra adjustable indicator that can be set to deduct weight of milk pail. Large graduations are easily read. Dimensions: 8" x 2" x 17". Heavy construction assures years of reliable service.

Price $6.50

Available at your local hardware store or dairy supply house.

60 lbs. by 1/10 lbs.

Hanson Scale Company
Established 1888
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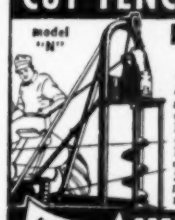

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FARMS FOR SALE

FOR Sale—160 acre dairy farm on Highway 40, five miles east of Columbia, Missouri. Six room modern home, 57 cow dairy barn with Grade A milk house attached. 80 ton hay mow capacity, granary attached. Built in 1938. Barn for young stock with hay storage above. Built in 1944. New concrete stave silo. 300 hen Missouri type poultry house built in 1940. Good deep well with automatic pump. 1½ acre pond stocked in 1946 with Big-Mouth Bass and Blue Gills.

22 acres Ladino and Alta Fescue completely fertilized—90 acres meadow with Timothy, Lespedeza, Blue Grass and White Clover. Requires no lime at present. 37 acres Red Clover and Timothy. Limed heavily. Farm in high state of fertility as commercial fertilizers have been added each year. No corn has been grown on it in last 14 years. On St. Louis and two Columbia milk routes. Price $260 per acre. 75% can be financed over ten to twenty year period. For further information write to CLYDE SHEPARD, Box 657, Columbia, Missouri.

STROUT'S two new spring catalogs, just out! World's largest. East and Mid-West Green cover; West Coast edition Yellow. Farms, homes, businesses, 3646 bargains. Either free. STROUT REALTY, 7 So. Dearborn St., Chicago 3, Illinois. 4-3

OREGON farms and ranches in our mild Willamette Valley. Send 25c for our illustrated catalog. KINGWELL AGENCY, Box 267-M, Corvallis, Oregon. 2-*

DAIRIES

FOR Sale—Operating dairy, 387 acres, heavy producing grain and hay land, new modern six room dwelling, 2 tenant dwellings, milking parlor and large loafing barn with 70 head of Holstein, farm machinery and dairy equipment, good milk market. Price $75,000. We specialize in farm lands. BRADHAM REALTY COMPANY, INC., Realtors, Sumter, S. C. 5-2

320 ACRE dairy farm. Most modern in southeast Missouri. Level land. Ideal climate. $60,000. Details and photographs furnished on request. JOE G. RADICAN, Realtor, Dexter, Missouri.

SALESMEN WANTED

MEN—Women—Full or part-time work in New York and New England states. Good earnings and promotion if capable, honest and ambitious. Should have car and like farm-to-farm selling. Write today to M. B. FISH, Marietta, New York. 6-4

AGENTS WANTED

AT LAST! Something new and sensational in everyday cards. 21 for $1. Make extra money fast! Show Satin, Velour, Metallic cards. Get orders easy. Big line $1 assortments, scented stationery, personal matches, kiddie books, Imprints free. Two $1 boxes on approval. PURO CO., 2801 Locust, Dept. 292-C, St. Louis 3, Missouri. 3-4

FARM folks to sell farm-to-farm, offering real dairy farm service. Full or part-time work offers good earnings and opportunity for promotion. Car needed. Also need men or women to train for manager positions all states of U.S. Write today giving full information and what you have sold in past to BOX 874, care Hoard's Dairyman, Fort Atkinson, Wis. 6-4

POSITIONS WANTED

EXPERIENCED working herdsman or manager available April 1. Purebred Holsteins on test preferred. Married, age 30, draft exempt. Excellent cow and calf man. Will improve your production. BERNARD RISCHLING, Geneva, Nebraska. 5-2

WANTED to operate on shares, a modern, equipped dairy farm or would consider manager or herdsman's position. Middle-aged, sober, college and Graham School graduate. Excellent farmer, milk producer and calf raiser. Can furnish splendid references. Address BOX 875, care Hoard's Dairyman, Fort Atkinson, Wis.

CAPABLE herd manager or herdsman seeks position. Married, 47 years old, lifetime experience in all phases of work. Prefer Holsteins. Write BOX 871, care Hoard's Dairyman, Fort Atkinson, Wisconsin.

MOTHER and son want job on dairy farm. Write ROSE WISMILLER, care Loyd Chambers, Route 5, Clinton, Wisconsin.

HELP WANTED

FARM hand wanted for all around farm work, good salary, modern home. Start immediately. Call or write LOUIS NEHLS, Juneau, Wisconsin. Phone 4933. 5-2

OPPORTUNITY. Experienced DHIA Supervisors needed in Oregon. Minimum salary $225 per month plus room and board. OREGON STATE COLLEGE EXTENSION SERVICE, Corvallis, Oregon. 5-2

WANTED—Single or married man with good habits for general work on a small northern Iowa Swiss farm. Good room and board. State experience and wages wanted. BOX 863, care Hoard's Dairyman, Fort Atkinson, Wis. 5-2

EXPERIENCED milker. Handle 40 cows 2X machines. Wages and percentage. Modern house, small family. Western Montana. Write BOX 860, care Hoard's Dairyman, Fort Atkinson, Wisconsin. 5-2

DAIRYMAN for top Holstein herd in Illinois. State marital status, experience and telephone number. BOX 861, care Hoard's Dairyman, Fort Atkinson, Wisconsin. 5-*

WANTED—Married man for general farm work. Good wages. House, electricity, wood. ALFRED DIETER, Livingston, Wisconsin.

WANTED—Reliable married man for general work on modern New Jersey dairy farm. Quarters, heat, electricity, milk. Give full information, experience and references. BOX 872, care Hoard's Dairyman, Fort Atkinson, Wisconsin.

MARRIED man, steady, on purebred Ayrshire and hog farm. Separate modern 7 room house, school bus, good community northwest Iowa. Give qualifications and wage expected. BOX 873, care Hoard's Dairyman, Fort Atkinson, Wis.

HELP WANTED

WANTED—Middleaged honest displaced couple on dairy farm. German or Belgian preferred. Honest couple will be given every opportunity to get good home. OSCAR WESTERHEIDE, Waggoner, Illinois.

TEST cow milker to milk three times string twelve cows. Prefer man with no more than three in family. Good living quarters; all utilities paid. Wages depend upon man. BOX 851, care Hoard's Dairyman, Fort Atkinson, Wis. 6-*

SINGLE man to work with registered Jersey herd. No field work. Permanent. Good wages. Room and board. BOX 850, care Hoard's Dairyman, Fort Atkinson, Wisconsin. 6-*

FAMILY of three with son old enough to work. Steady. Father or son to work either with chickens or in the dairy. Mother could also possibly work with poultry. Good living conditions. Excellent wages for all. Permanent. BOX 852, care Hoard's Dairyman, Fort Atkinson, Wis. 6-*

SINGLE men with dairy, poultry, general farm experience. Top farm wages. Chance for training and advancement. Excellent working and living conditions. Steady, year-round work. BOX 720, care Hoard's Dairyman, Fort Atkinson, Wisconsin. 13-*

WANTED—Man to milk, feed, raise calves and general dairy work. Holstein cows. House, garden, lights furnished. Paved road, two miles from town, 40 cows milking. M. C. EDWARDS, Mgr., TOWER HILL DAIRY, Kinston, N. C.

FARM hand wanted, single, over 21, experienced with good Holsteins and modern machinery. Can start now. Steady. Top wages and bonus. Give reference. H. J. CHANDLER, Route 1, Box 243, Sturtevant, Wisconsin.

TEST cow milker. Married or single for registered Guernsey herd. 3X milking. Modern working and living conditions. Salary, opportunity above average for the right man. Give references and qualifications in your first letter. Midwest. BOX 876, care Hoard's Dairyman, Fort Atkinson, Wisconsin. 6-3

WANTED at Once—Experienced cow man to work with registered Guernsey herd in Minnesota. Permanent, with top salary to reliable man. Modern conveniences. BOX 877, care Hoard's Dairyman, Fort Atkinson, Wis.

WANTED—Married man experienced to take charge of accredited and certified purebred Guernsey herd. Must be experienced. Good wages and modern 5 room bungalow. Near Philadelphia, Pennsylvania. BOX 878, care Hoard's Dairyman, Fort Atkinson, Wis.

WANTED—Assistant herdsman for large commercial dairy operation in the southwest. Duties consist mostly of parttime artificial insemination and parttime supervision milking operation. House provided, good salary, good future. State experience, references, salary expected, first letter to S. J. Ridge, Manager, PRICE'S EL PASO DAIRY, El Paso, Texas. 6-2

WANTED—Capable herdsman for high producing Jersey herd in eastern Pennsylvania. Forty cows, 2x milking, married, over 40, small family, no liquor. House heat, gas, electricity, milk, meat, good salary plus bonus. References required. IVERLEA FARMS, Tinicum, Bucks County, Pennsylvania.

WANTED—Single man, experienced in all phases of dairy farm, excellent working conditions and salary to well qualified man. PEBBLEBROOK FARMS, Chesterland, Ohio. Robert Snow, Mgr. Tel. Chardon 61239; office Tel. Chesterland 646.

HELP wanted on Large Certified Milk Farm. Good wages. Pay for overtime. Room and board reasonable. Opportunities for dependable men. Write for information. WALKER GORDON LABORATORY COMPANY, Plainsboro, New Jersey. 24-spl

SEEDS AND PLANTS

EVERGREEN tree seedlings. Transplants. For growing Christmas trees. Ornamentals. Hedges. Windbreaks. Quality stock low as 2c on quantity. Free list and planting guide. SUNCREST EVERGREEN NURSERIES, Dept. HD, Johnstown, Pa. 20-13

MONTANA'S largest distributors of strictly Hardy Northern Grown Alfalfas, Grimm, Cossack, Ladak, Ranger, Clovers and Grasses selling direct to you at money saving prices. Write for descriptive catalog. MONTANA SEED COMPANY, Box 507, Bozeman, Montana. 5-4

RED rich strawberry plants, grown by originator. Supply limited—order now! 12 plants $2.95; 25—$5.00; 50—$8.50. Brilliant and Wayzata 25—$2.50. Everbearing Gem, Evermore and Superfection 25 for $1.00. Try several and compare. MINNETONKA NURSERIES, Excelsior 8, Minnesota. 5-2

NORTHERN Alfalfa seed 46c lb. up. Sweet Clover 11c up. Write for prices and free samples of Ranger, Ladak and Grimm Alfalfa; Ladino, Trefoil, Bromus and Alta Fescue. GRIMM ALFALFA ASSOCIATION, Fargo, N. D. 500 Cooperating Growers. 5-2

HARDY Northern Processed Alfalfa Seed $29.85 bushel. Sweet Clover, Red Clover, Timothy, Ladino, Lespedeza, Brome, many other seeds. Lowest direct to you prices, quick service, satisfaction guaranteed. Save money—send postal now for catalog, prices, samples. JACK BOWMAN, Box 636, Concordia, Kansas. 5-*

BIRDSFOOT Trefoil: New York State Empire Broadleaf Birdsfoot Trefoil Seed—Cornell tests show purity: 99.2%—Germination 96%—price delivered with special inoculant, $1.75 per lb.—100 lb. lots, $1.60 per lb. while supply lasts. MED-O-DALE FARMS, Altamont, N. Y. 6-3

RABBITS

EARN up to $400 monthly raising Angora or New Zealand rabbits. Plenty markets. Particulars free. WHITE'S RABBITRY, Newark 30, Ohio. 2-*

MAKE Big Money! Raise Chinchilla rabbits. Cash markets supplied. Write today! ROCKHILL RANCH, Sellersville 43, Penna. 1-8

SWINE

REGISTERED Berkshires. Sired by 3 State Fair Champions. Practically grade prices. ORLO ADAMS, Hartland, Wis. 24-*

POULTRY—BABY CHICKS—DUCKS

CAPONS, Barron Leghorns, Broadbreasted Delaware—Hamps, New Hampshires. Fully guaranteed. Amazing bargains. Write for catalog. HEIMAN'S HATCHERY, Montrose 6, Mo. 2-*

BEGINNERS Special—Automatic electric brooder and 200 chicks, no Leghorns included, all $24.95 plus postage. Pullet Special: 100 pullets; light or heavy; 100 market type chicks; 100 table chicks; all 300 only $24.95 plus postage. McCRAY'S CHICKS, Cedar Rapids, Ia. 3-6

GEESE For Sale—Gray Toulouse and white Emden $8.00 each. White Chinese $7.00 each. ED O'NEILL, Wilson, Wisconsin. 6-3

YEAGER'S Big English Type Lopped Comb White Leghorns from Champion bloodlines, U. S. approved, pullorum passed, $9.95; pullets, $15.95; Cockerels, $5.90. Free catalog. F.O.B. YEAGER'S HATCHERY, Box 297 HD, Warrensburg, Missouri. 6-2

DOGS

GENUINE English Shepherd and Collie Pups. Healthy and strong. Guaranteed heelers. Year's trial. Choice of sex. Spayed females a specialty. Priced right. CLOVERDALE KENNEL FARM, Ackley, Iowa. 18-*

SHEPHERDS, Collies, outstanding heelers, watch dogs. ZIMMERMAN FARMS, Flanagan, Ill. 5-*

CATTLE and hog breeders want courageous, sedate livestock working dogs. My registered Border Collie pups are filling that need. M. S. PERROT, R-4, Gentleman Road, Ottawa, Ill.

REGISTERED Border Collie puppies. Excellent bloodlines that produce good workers. MALYDA FARM, Route #1, Box #224, Libertyville, Ill.

ENGLISH Shepherd and Border Collie pups. Guaranteed heelers, watchdogs, companions. Males $12; females $8. NORBERT GONNERING, Route 1, Kaukauna, Wisconsin.

WORKING Border Collies from choicest imported parents. Puppies guaranteed. HOWARD McCLAIN, R-6, Lima, Ohio. 6-*

GENUINE English Shepherd pups. Get one now for spring training. Males $12; females $8. JOHN GEENEN, Little Chute, Wisconsin.

FILM SERVICE

ONLY 25c for 8 beautiful enlarged prints from your roll or negative. (Trial Offer). 16-50c. Quick service. Money-back guarantee. WILLARD STUDIOS, Box 3535T, Cleveland, Ohio. 4-*

MISCELLANEOUS

MAKE up to $45-$55 week as a Trained Practical Nurse. Learn quickly at home. Booklet free. CHICAGO SCHOOL OF NURSING, DEPT. F-3, Chicago, Illinois. 1-6

MIDWEST pays top prices, the highest in history. All new feathers are for defense purposes. Here's what Midwest pays you: New White Goose, $2.50 per lb.; New Grey Goose, $2.25; New White Duck, $2.15; New Colored Duck, $2.05. For top prices, feathers must contain original down and be free from quills. Goose and duck quills, 20c per lb. To obtain highest prices for used goose and duck feathers, send samples for quotations. MIDWEST FEATHER CO., 2300 S. Calumet Avenue, Chicago 16, Illinois. 2-*

NYLON Hosiery Bargains: 6 pairs mill rejects $1.00. 3 pairs better grade $1.00. Postpaid when cash with order. ALLEN HOSIERY CO., P. O. Box 1676, Dept. 11, Chattanooga, Tennessee. 5-2

TURN spare hours into cash. Make and sell hats, handbags. Easy lessons include materials for 17 hats, blocks, supplies. Booklet free. LOUIE MILLER SCHOOL OF MILLINERY, Dept. FJ, Chicago 26, Illinois. 6-spl

10c BRINGS Surplus Catalog—We sell for less. Prices slashed on welders, motors, generators, hydraulics, pumps. See ours first. LeJAY COMPANY, Minneapolis, Minnesota 4-spl

NO trespassing, hunting, fishing, for sale signs our specialty. Black and white or colors. Your own copy or standard forms, 100 as low as $6.00. Printing for 35 years. R. ORTHWINE, 416 West 33rd Street, New York 1, New York.

VERMONT Grade A pure Maple Syrup in beautiful lithographed cans each $6.75. Prepaid 3rd zone. 4 or more at $6.50. ½ gals each $4.00. Four or more at $3.75. Satisfaction guaranteed. Maple products our specialty. MAPLEMOUNT FARM, Enosburg Falls, Vermont.

ATTENTION—We specialize in 3 great lines, Carnation strain bulbs—purebred grafted nut trees—tree crops for forage. Catalog of each free. These three make good farms better. NUT TREE NURSERIES, Box G, Downingtown, Pennsylvania. 6-spl

A $100-A-MONTH hobby at home! No soliciting, no mail order, no meeting people. Easy, enjoyable pastime. Details 25c. (Refundable). LAURA DICKSON, 613-HD Murray Ave., Anderson, South Carolina.

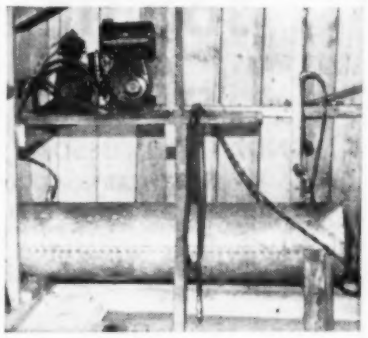
Printed Letterheads

mean a lot to you! They impress folks and also lend a business like atmosphere. We have beautiful illustrations of every breed for you to select from in our new Stationery Circular. Write for it.

ART DEPARTMENT
HOARD'S DAIRYMAN
FORT ATKINSON, WIS.

. . . HANDY HINTS . . .

MAKES FARM AIR COMPRESSOR



After pumping tractor tires by hand and finding commercially made air compressors too costly, Benjamin Jager, a Sussex County, N. J., dairy farmer, made one that is giving excellent service in a number of ways about the farm.

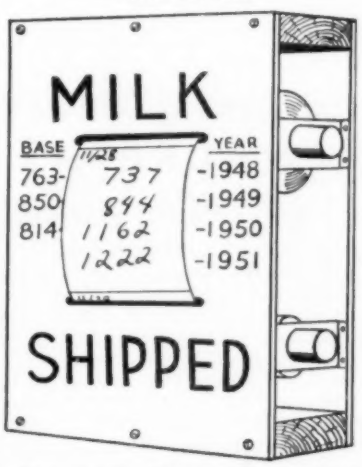
He used the pump from an old milk cooling unit for the compressor itself, a new 300-pound test hot water tank for the air storage tank, and operates the compressor with a single cylinder gasoline engine normally used to operate the milking machine in emergencies when the electric power is off. An electric motor could be substituted for the gasoline engine.

The air pressure is kept at 85 pounds and is available at all times. A pressure relief valve is installed in the tank so that pressure cannot go over 150 pounds. —C. H. DREW.

COMBINATION TRAILER AND LIVESTOCK LOADING CHUTE

An Iowa farmer, Pete Elgerson, gets plenty of service from his combination trailer and livestock-loading chute. As a chute he can haul it anywhere to load or unload livestock. As a trailer, it serves a multitude of uses on the farm.

KEEPS RECORD OF MILK PRODUCTION



How many dairymen can tell at a glance how their today's milk production compares with the production a year ago? Three years ago? Four years ago?

This small box hanging on the milk house wall of Frank Plumb, Virginia, contains a roll of adding machine paper on two rollers. As Plumb's weight slips come back each day from the dairy, he records the weights on the tape.

He's in the fourth year on the same roll of tape.

Maryland. G. E. MCVICKAR.

Unadilla Holstein Dispersal

The dispersal of Roscoe A. Page's Unadilla Farm Holsteins at St. Charles, Ill., February 16, under the management of Ryan & Peissig was very successful. There was an excellent crowd in attendance and actual buyers from eight states paid an average of $601.41 for the 53 animals sold. Approximately half of the cattle found new homes in Vermont, Ohio, Iowa, Minnesota, Missouri, Indiana, and Wisconsin. The balance were sold to Illinois buyers.

The oldest animal in the sale by three or four years, sold for a higher price than any other member of the herd. This was Whirlhill Princess Louisa Posch, ten-year-old, good record, "Very Good" cow, a foundation animal of the Louisa family. She was purchased for $1,300 by Tony Farrell, UpWey Farms, Vermont. Her twin 2-year-old daughters by Pabst Signal went to the same buyer for $775 each and in addition he took a yearling daughter, Velveeta Posch Expectancy, for $950. Mr. Farrell's purchases included three other good ones.

Neither of the herd sires sold quite up to expectation. The daughters of the senior sire, Springbank Mercedes R. A. Sovereign, sold well, two for $1,000 each, with the eight milking daughters averaging $756. The sire himself went to John Polivka of Illinois for $700. Junior sire, Prince Rag Apple Chieftain, a grandson of Montvic Lochinvar from a good record granddaughter of Montvic Chieftain, went to Belrue Acres, Illinois, for $1,000.

Smith, Darcey, and Williams did the selling with Kenny Peissig of Ryan & Peissig, sale managers, reading the pedigrees.

Following are the average prices for animals of the different age classes: 28 females 2 years old or over averaged $653.75; 5 calves under 3 mo. averaged $106; 4 bred yearlings averaged $605; 10 open yearlings averaged $523.50; 8 heifers under 1 yr. over 3 mo. averaged $410.63; 3 bulls over 3 mos., $700.

DHIA Records Uncover Low Producers

"I have raised my dairy herd average nearly 100 pounds in four years just by culling out unprofitable cows and keeping calves from the good cows," says John A. Loucks, Will County, Illinois, dairyman.

And Paul O'Brien, in Kankakee County, says: "Testing tells you what each cow is doing and which cows should be culled."

J. G. Cash, University of Illinois dairyman, says one of the best uses of dairy herd improvement association records is to locate low producing cows. Culling these "boarders" is one of the chief ways to make many herds more profitable. In fact during 1950 one-fifth of all cows in DHIA herds went to the butcher, and half of these were sold because they were low producers.

Sale Announcements

Mar. 27—Holsteins. At Glanworth, Ontario, Canada. Shore Holsteins, Ltd., Sale Managers.

Mar. 31—11th Annual Butler-Lawrence County Sale at Butler, Pa. Pennsylvania Guernsey Breeders Ass'n., Sale Mgrs., Harrisburg, Pa.

Mar. 31—Brown Swiss. Waukesha Spring Sale at Waukesha, Wis. Norman E. Magnussen, Sale Mgr., Lake Mills, Wis.

April 5—Guernseys. Waukesha County Guernsey Breeders' Association Annual Sale at Waukesha, Wis. W. H. Pruitt, Sec.

April 3—Guernseys. 5th Annual Royal Sale at Lancaster, Pa. Pennsylvania Guernsey Breeders Ass'n., Sale Mgrs., Harrisburg, Pa.

April 1—Brown Swiss. Green Lawn Dispersal at Dakota, Ill. Norman E. Magnussen, Sale Mgr., Lake Mills, Wis.

April 4—Ayrshires. At Glanworth, Ontario, Canada. Shore Holsteins, Ltd., Sale Managers.

Apr. 7-8—Guernseys. St. Alban's Dispersal at St. Albans, Missouri. Louis McL. Merryman & Sons, Inc., Sale Managers, Sparks, Maryland.

April 19 — Ayrshires. Ohio Ayrshire Breeders Association Spring Sale at Kenton, Ohio. Ray Dellinger, Sec., Hilliards, Ohio.

April 14—Guernseys. Missouri State Sale at Columbia, Mo. Harry Herman, Sec.

April 18—Guernseys. Tennessee State Sale at Hermitage, Tennessee. Louis McL. Merryman & Sons, Inc., Sale Managers, Sparks, Maryland.

April 19—Jerseys. Arkansas Jersey Cattle Club Sale at Fort Smith, Arkansas. Laurence Gardiner, Sale Manager, Memphis, Tennessee.

April 21—Guernseys. Alabama Guernsey Cattle Club State Sale at Birmingham, Alabama. Walter Baker, Secretary, Birmingham, Alabama.

April 21—Brown Swiss. Laurel Ridge Dispersal at Litchfield, Conn. Norman E. Magnussen, Sale Mgr., Lake Mills, Wis.

April 23—Brown Swiss—Indiana Brown Swiss Breeders Association Sale at Indianapolis, Indiana. Ivan J. Robison, Secretary, Franklin, Indiana.

April 25 — Guernseys. Iowa Guernsey Breeders' Spring Sale at Waterloo, Iowa. C. H. Jennings, Sale Mgr., Iowa City, Ia.

April 26—Brown Swiss. Illinois State Sale at Princeton, Illinois. Willis Wagler, Sec., Pekin, Illinois.

April 28—Guernseys. Mid West Sale at St. Charles, Ill. Gavin McKerrow, coordinator, Pewaukee, Wisconsin.

April 28—Guernseys. Louis Merryman's 82nd Sale at York, Pa. Louis McL. Merryman & Sons, Inc., Sale Managers, Sparks, Maryland.

May 3—Ayrshires. Grand National Sale at Baltimore, Maryland. Tom P. Whittaker, Sale Manager, Brandon, Vermont.

May 5—Guernseys. 13th Quail Roost Maxim Sale, Rougemont, N. C. Louis McL. Merryman & Sons, Inc., Sale Managers, Sparks, Maryland.

May 5—Ayrshires. Medal Ridge Dispersal at Yorktown Heights, New York. Tom P. Whittaker, Sale Manager, Brandon, Vt.

May 5—Holsteins. "Top-of-the-Crop" Holstein Sale at Oconomowoc, Wisconsin. A. W. Petersen, Sale Mgr., Oconomowoc, Wis.

May 6—Brown Swiss. Engle Acres Dispersal at Waukesha, Wis. Norman E. Magnussen, Sale Manager, Lake Mills, Wis. under Sale Announcements

May 1—Guernseys. White Hall Dispersal

May 7—Guernseys. Witchwood Dispersal at North Wales, Pa. Louis McL. Merryman & Sons, Inc., Sale Managers, Sparks, Maryland.

May 10—Guernseys. 4th McDonald Sale at Cortland, N. Y. Louis McL. Merryman & Sons, Inc., Sale Managers, Sparks, Maryland.

May 10—Jerseys. Biltmore Farms Annual Sale at Asheville, North Carolina. Laurence Gardiner, Sale Manager, Memphis, Tennessee.

May 12—Holsteins. At Glanworth, Ontario, Canada. Shore Holsteins, Ltd., Sale Managers.

May 15—Guernseys. The 27th Guernsey Sale, Forsgate Farms, Jamesburg, N. J. Louis McL. Merryman & Sons, Inc., Sale Managers, Sparks, Maryland.

May 15—Ayrshires. St. Lawrence Valley Ayrshire Club Production Sale at Gouverneur, New York. Tom P. Whittaker, Sale Manager, Brandon, Vermont.

May 24—Guernseys. Northwest Wisconsin Guernsey Sale at Chippewa Falls, Wis. Wisconsin Guernsey Breeders Ass'n, Sale Managers, Box 14, Waukesha, Wis.

May 26—Jerseys. Knollwood Farms Complete Dispersal at Chester, Illinois. Laurence Gardiner, Sale Mgr., Memphis, Tenn.

June 14—Jerseys. Happy Valley Farms Annual Sale at Rossville, Georgia. Laurence Gardiner, Sale Mgr., Memphis, Tennessee.

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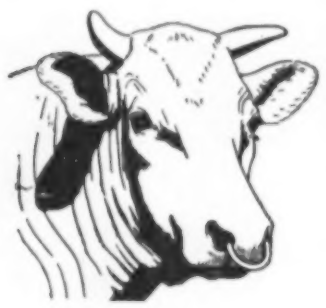
Livestock Ads Sell Bulls

"My Last Three Bulls Came From The Same HOARD'S DAIRYMAN Advertiser.

"I first started reading the livestock ads in HOARD'S DAIRYMAN back about 1940 when we were looking for a herd bull. I wrote two or three advertisers, found a good bull and bought it. The next two bulls came from the same breeder.



"HOARD'S DAIRYMAN livestock columns are always interesting to read and useful to use. They are worth reading because they keep one posted on what some of the other people with our breed are doing, what they are selling and sometimes what their prices are.

"So far, we have advertised our own animals a few times when we had one or two to sell. We hope, however, to begin regular every issue advertising sometime this year. Personally, I think that when you want to buy, it pays to buy from HOARD'S DAIRYMAN advertisers. When you want to sell, HOARD'S DAIRYMAN readers are the best market."

Our readers will buy your young bulls, and your surplus females, too, for good prices if you have worth while ones to sell.

HOARD'S DAIRYMAN
FORT ATKINSON, WIS.

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Improved Stud Service

An opportunity to follow a well-defined, successful breeding program, as carried on at the Curtiss Candy Company Farms. Matings to present herd sires and looking ahead to future sires, combining the most desirable bloodlines.

Selected Matings available in all five major dairy breeds. For further information, consult your Curtiss Herd Technician in your area, or write:

LIVESTOCK DIVISION OFFICE
Cary, Illinois Telephone: Cary 5411

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Losing money on low value calf crops? Investigate Red Polls, the dual purpose, all red, hornless breed for farmers who want milk and beef without keeping two breeds. Ideal for commercial cross breeding. Literature free. Red Poll NEWS, $1 per year. Write Dept. HD.

RED POLL CATTLE CLUB OF AMERICA
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MORE PROFITS under AVERAGE FARM CONDITIONS

with TRULY DUAL PURPOSE MILKING SHORTHORNS

BEST in EVERY WEIGH

Under average farming conditions, Milking Shorthorns will give more profit because they convert home-grown feeds and roughage into meat, milk and butterfat most economically. A Milking Shorthorn holds highest butterfat record in world — also highest records on twice-a-day milking! Milking Shorthorns are BIG ... have capacious deep body and mammary development of dairy cattle. Their TWO-WAY bargaining value plus greater saleability of calves means greater farm security under uncertain world conditions. Get FREE facts or subscribe to Milking Shorthorn Journal. 6 months, $1.00; $2.00 per yr.; 3 yrs., $5.00.

AMERICAN MILKING SHORTHORN SOCIETY
Dept. C-5, 313 S. Glenstone Ave., Springfield, Mo.

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GUERNSEYS

FOR SALE — Bull

born June 1951. Highest records of his dam and paternal granddam ave. 15,603M 789F. Sire is most satisfactorily proven and dam is from an excellent cow family. A nice individual. Also a few well bred heifers.

TARBELL GUERNSEY FARMS
Smithville Flats New York

IDEAL FARMS
PUREBRED
GUERNSEYS

Why not be the proud owner of your own herd sire? We have many out of 700, 800, or 900 lb. dams. Breeding stock you are looking for. State your wants, better yet, come and see for yourself. The World's Greatest Production Herd. Prices reasonable.

IDEAL GUERNSEY FARMS
AUGUSTA NEW JERSEY

GLADYS OF HAM FARM

4 yrs., 305 days, 2X, D.H.I.A. 17,562# milk, 1,016.8# fat. Believed World record — 2 sons in service on Ham Farm. Herd record 1950—D.H.I.A. 10,177# milk, 531.9 fat. Highest in Virginia. As of Jan. 1, 1951 all the mature cows in the herd had D.H.I.A. 2X records the highest of which averaged 11,844 milk, 629.6# fat—332 days. Bull calves from high record dams for sale or lease.

R. R. CROWGEY, Owner
HAM FARM, WYTHEVILLE, VA.
JOHN H. CROWGEY, JR., Mgr.

OFFERING an OUTSTANDING YOUNG BULL, born April 5, '51. His 3 nearest tested dams ave. 982 fat. His sire's dam has 3 Ind. STATE RECORDS up to 1006 fat. His dam has 14,963-835-AA and Classified VERY GOOD at 13 yrs. old. **LOOKWELL FARMS, Mervin Eby & Son, Elkhart, Indiana.**

ST. ALBANS DISPERSAL

300 HEAD of REGISTERED GUERNSEYS

23 BULLS - 157 COWS - 60 BRED AND 60 OPEN HEIFERS

ST. ALBANS, MISSOURI

MONDAY and TUESDAY, APRIL 7 and APRIL 8, 1952

SALE STARTS AT 10:00 A. M. EACH DAY

St. Albans Farm is located at St. Albans, Missouri, 35 miles west of downtown St. Louis, 6 miles north of Highway 50.

This is one of the top herds in the country. It has been on continuous A. R. and HIR. testing since it was started in 1932. The testing has been done in the stanchions under average conditions. Over 1,100 records average close to 500 lbs. of fat. Many top cow families have been developed including the "Beauty Spots," "Hale Spots," "Faiths," etc. St. Albans Guernseys have a reputation for doing well wherever they go. This dispersal was forced due to the continuous heavy crop losses due to the flooding of the Missouri River.

St. Albans has always used top herd sires. At present the senior sires are two very well bred McDonald bulls and St. Albans Actor's Valiant Boy that is doing a real job. They are as follows:

McDONALD FARMS
P. MONARCH
Dropped: January 7, 1947
S: McDonald Farms Predicter Herd sire at Caumsett
D: McDonald Farms King's Jolly Lady (EX)
12417-622-Jr. 2-365C; 13461-723-Jr. 4-365
Sold for $12,500

McDONALD FARMS
KING AUGUSTUS
Dropped: June 13, 1945
S: Myhaven King
D: McDonald Farms Gentle (EX) 11049-690-DD; 12646-736-5 yrs.

ST. ALBANS ACTOR'S VALIANT BOY
Sire of 1 Excellent, 5 VG and 5 D daughters, 12 classified. Dropped: March 16, 1944. S: Wildwood Actor's August. D: St. Albans Valiant Faithful—15845-773-Sr. 4C; 11142-537-FF.

The CHASE HOTEL in St. Louis will be Sales Headquarters.
Busses will run from the Hotel to the Farm.

For Catalogues write

THE LOUIS McL. MERRYMAN & SONS, Inc., Sparks, Maryland, or MISSOURI GUERNSEY BREEDERS' ASSOC., H. A. Herman, Secretary-Treasurer, 125 Eckles Hall, Columbia, Missouri.

THE MIDWEST GUERNSEY SALE

APRIL 28 . . . AT ST. CHARLES, ILL.

60 Females
3 Bulls

This is an Invitational Sale representing the best herds of the Midwest. The herds consigning 3 or more of their top cattle are Curtiss Candy Farm, Illinois—Meadow Lodge Farm, Oklahoma — Walker Farms, Mississippi — Welcome-In Farm, Ohio — and Wey Acres Farm, Wisconsin.

Cooperation of State Breeders Associations has secured many great individuals from top herds in ten states.

A Preview of many of the cattle now ready.

Send for it and catalog to

GAVIN W. McKERROW, Coordinator Pewaukee, Wisconsin

40th ANNUAL CONSIGNMENT SALE, APR. 5, 1952

WAUKESHA, WISCONSIN

69 -- REGISTERED GUERNSEYS -- 69

Four Bulls from Dams making over 500 lbs. of Butterfat. Sixty-five carefully selected females from good herds. The breeders in Waukesha County forsee the need for more milk production coupled with butterfat and are breeding cattle to give both milk and butterfat. They also recognize the need for more color in Guernsey milk and Waukesha County has the best facilities of any county for testing color in milk. A large number of our herds are testing individual cows in their herds. All this makes our sale a good place to select your foundation stock and also to make replacements in your herd. Write W. H. Pruitt, Secretary for catalogues.

Waukesha County Guernsey Breeders' Ass'n., Box 14, Waukesha, Wis.

Buy From Our Advertisers — They Are Reliable

MISSOURI STATE SALE

MON., APR. 14, 12 NOON C.S.T., Columbia, Mo. The Fifteenth Missouri Guernsey Breeders' Consignment Sale will go ahead as usual the spring of 1952. We are assisting with the **St. Albans Dispersal, April 7th and 8th** but feel our State Sale is a fixture and will be supported as will the St. Albans Dispersal.

The offering will consist of splendid consignments from leading Missouri, Indiana, Oklahoma, New York, and Mississippi herds.

15 Cows in milk. Young and of good type. Production records of over 600 pounds in A.R.

20 Bred Heifers. Our sale feature. The kind to bank on in a 2 for 1 buy.

12 Open Heifers. A flashy lot with lots of type. Out of dams with records to nearly 700 pounds.

3 Bulls. By good proved sires and from dams with 700 pounds up.

T.B., Brucellosis and Mastitis free.
Many Calfhood vaccinated.

For Catalog Write: **The Missouri Guernsey Breeders' Ass'n, H. A. Herman, Secretary-Treasurer, 125 Eckles Hall, Columbia, Mo.**

IOWA GUERNSEY BREEDERS SALE

APRIL 25: 12 Noon: Waterloo, Ia.

60—REGISTERED GUERNSEYS—60

7 Bulls, 25 Cows in Milk, 14 Bred Heifers and 14 Heifer Calves

These are top quality animals representing the best of blood lines. The bulls are from some of Iowa's top brood cow families and of popular breeding. The cows and heifers should prove excellent investments. 14 heifer calves are suitable for FFA and 4-H work. For catalogs write:

IOWA GUERNSEY BREEDERS ASS'N., INC.
C. H. Jennings, RFD 4, Iowa City, Iowa

Brandtjen Farms Guernseys

"WHERE YOUR DOLLAR BUYS MORE"

We now offer sons, any age, of the soon proven bull, Morse Shoe Conrad's Asterbilt, first prize aged Bull, Minn. 1951. His Jr. Get also placed first. His dam is a class leader with 880 lbs. B.F. His first daughters are filling the pail very well, too.

BRANDTJEN FARMS, Farmington, Minnesota

YOUNG BULL FOR SALE

We can offer a young bull born April 17, 1951. Sired by Skyline King's Traveler (a son of McDonald Farms Skyline King and McDonald Farms Gratitude from a daughter of Pine Manor Triumph.) A fine individual calf from a good proven cow.

W. E. CUSHNER, Wecoe Acres, Stillwater, Minn.

BULL CALVES FOR SALE

sired by Langwater Prize, he by (Langwater Valencian and Great Elm Prissy 810 lb. fat) and Royal of Wayland (Foremost Royal Precision and McDonald Farm's Elsie 822 lb. fat): From dams with H.I.R. records from 500 to 717 lbs. of fat on twice a day machine milking. Very nice calves with production blood lines, and priced to sell.

WAYLAND FARM Millington, Illinois

FOR SALE

YOUNG GUERNSEY BULL CALVES

by outstanding herd sires and out of high production dams from good cow families; also outstanding Yorkshire hogs from selective breeding. If interested send for free leaflets on our Guernseys and Yorkshires.

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Box 552 Lake Forest, Illinois

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Backed by type breeding and records. We are offering for sale sons of our herd sires, Meadow Lodge King's Duke and R. Lane's Proud King. Sires' dams have records from 614 to 926 fat. Also some choice heifers. Write today for full information.

R. LANE FARMS, BASSETT, WISCONSIN
J. H. Rustman, Owner Lewis M. Meyer, Manager

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Come to Wisconsin for your purebred Guernseys. We know most of the breeders in America's Dairyland and will give you honest and intelligent guidance in your selections. Good purebreds pay.

WISCONSIN GUERNSEY BREEDERS' ASS'N. Waukesha, Box 14, Wis. Otto C. Kline, Secretary

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Sired by McDonald Farms King's Dairyman (sire, Myhaven King and out of McDonald Farms Daffodil, 602 lbs. butterfat (6G); also, Woodacres Royal Dairyman (sire, Douglaston Prince Royal and out of Rockingham Recollect, 627 lbs. butterfat Jr. three-year-old). These youngsters are out of cows with good type and production. Priced to sell. A card will bring you prices, etc.

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Fort Atkinson, Wisconsin

FOR YOUR FUTURE HERD SIRE

select a son of

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LOOKOUT VALLEY FARM, Lake Geneva, Wis.

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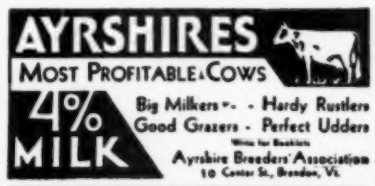
Purebred and grades with outstanding production and type. Purebred bulls that will increase the value of your herds. T.B. and Bang's tested. Service to buyers is free. **JEFFERSON CO. GUERNSEY BREEDERS' ASS'N., Fort Atkinson, Wis.**

AYRSHIRES



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Ohio Ayrshire Breeders Association
KENTON, OHIO, APRIL 19

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REIDINA FARMS, Newtown, Pennsylvania

AYRSHIRE BULL CALF

Born—1-20-'52—By Approved, imp. sire. Dam classified V.G. for type. Record at 2 yrs.-10 mo.—10,077 lbs. 4.0% milk in 305d. 2x milking. Price $250 F.O.B. Port Chester. Pedigree on request.

STRATHGLASS FARM, Box 71, Port Chester, N. Y.

AYRSHIRES

The Heavy Milking Kind

Home Of "Miss Phett," National Champion Over All Breeds, With 1,036 lbs. fat on twice daily milking in 305 days.
Some wonderful herd sire prospects by a son of this champion will be coming along.

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OUR PRICES REASONABLE

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Bred for Type, Production, Test, Disposition and Longevity by Preferred Pedigreed bulls; from tested and typed dams. Let your next herd sire come from Carefree; let him convince you.

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AYRSHIRE BULL CALVES

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HOOSIERLEA FARMS
Franklin, Indiana

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AYRSHIRE SALES

Fairgrounds, Timonium, Md.
May 3 — Starting 10:30 A. M.

BULL SALE—10 young bulls with proven ancestry.
CALF SALE—15 heifer calves with record backing.
FEMALE SALE—30 bred heifers and 15 cows with exacting type and production breeding.

An opportunity to buy some of the best Ayrshires. Sales sponsored by Promotional Committee, Ayrshire Breeders' Association.

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Ready for Service. 61 Tons of 4% milk and 66 Tons of 4.52% milk backing. Write

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4 mos. old. Selected pedigree Ayrshire bull calf. Sire Glengarry Bright Bomber. Dam: Glen Campbell Ode 3rd who has 100,000 lbs. milk to her credit. **G. J. PAGE, MAR-RAL FARM, R. 1, Algonquin, Ill.**

HOLSTEINS

CARNATION IMPERIAL MADCAP LAD
Gold Medal Proven Sire
Sire of 1st Prize Get of Sire, Evergreen Show
Sire of 1st Prize Jr. Get of Sire 1948, Indiana State Fair
His Daughters Are Making Outstanding Records in 3 Herds

We offer a Son of Carnation Imperial Madcap Lad from a 1st. calf daughter of "Revelation"

THIS week we offer the splendid bull calf, Ear Tag 8930, born December 22, 1951.

His sire, the "Madcap" bull (whose sire and dam are both by Governor of Carnation) is pictured above. His dam is from a granddaughter of Carnation Ormsby Violet, one of the 4 famous Madcap sisters.

His dam is a promising daughter of Carnation Homestead Revelation, one of the greatest sons of Governor of Carnation from a 933-pound 3-time daughter of Carnation Ormsby Perfection, from the same dam as Carnation Homestead Inka Mutual, twice 1200-pound daughter of Governor.

An exceptional bull as you see.

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Carnation Milk Farms

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Registered heifer calves. For one or a thousand, phone, write or come to

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Calf born 11-1-51. Dam's last record 2X 340 days, 17,213, 4.29%, 741.7. Calf born 11-6-51. Dam's Last record 2X 303 days, 15,947, 3.82%, 608.7. Calf born 7-26-51. Dam with 4.49% test 2X 303 days 10,487 M, 470.5.

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Ohio's Largest Licensed and Bonded Distributors

STYLEMASTER CARNATION FOBES

This month we offer the calf, Stylemaster Carnation Fobes pictured above, who is a son of Carnation Stylemaster whose four nearest dams averaged 813.2 lbs. fat.

He is dammed by Asterdale Waupun Beets, who has an A.R. record as a 4 yr. old of 657.1 lbs. of fat and 18,979 lbs. of milk. This is a beautiful type calf and has inheritance to sire type and production in your herd.

For price and shipping instructions write:

STOFFELL'S MILK FARM
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The RAYULMN FARM

offers **SERVICEABLE** aged Ormsby bred bulls of Burke blood lines. Herd Type Classified—AR and HIR testing.

RAY P. ULLMANN
5203 Loraine, Detroit 8, Michigan

EXCEPTIONALLY WELL BRED

BULL CALF FOR SALE

Lots of show type and production in record

E.T. 456 already gives most unusual indication of developing into very attractive, typy individual. 12 of his nearest 15 dams av. m 22151, f 879, 3.8%. Blood line includes (1) three crosses of famed Governor of Carnation (first sire of any breed to have 30 dams over 1000 f); (2) two crosses Carnation Governor Imperial (all-Am. Bull, 1934, 38, 39; sire 2 Res. All-Time All-Ams.)

Dam: Granddaughter of our silver medal DHIA Plus Proven Sire; daughter Carnation Imperial Ringmaster, whose daughters are doing very well. Dam at 2y4m 345d, 2x, f 478, m 13567, 3.53%; 1st 61d present lact. 2x 132 f, 3524 m 3.75%.

Sire: 6 nearest tested dams av f 1042. Sire is pat. bro. of (1) Carnation Tiptop, 1st Jr. Yrlg. Pac. Int. last yr., sold to Mexico for $30,000; (2) Carnation Skylark Creamelle, 321d 13100 m, 469 f 3.6%.

Certainly a richly bred calf.
Write for descriptions.

THE W. T. RAWLEIGH CO.
FREEPORT, ILLINOIS

EUREKA FARMS Offer

bulls from Sept. on, backed by a herd in DHIA test since 1918. The dams are the result of using 7 Carnation bulls since 1933. Our oldest calf is 5 mos. old and sired by our Carnation Royal Gem, a very choice calf from a real mother. We are now beginning to use our Carnation Plunderer along with our Frazier bull.

C. E. HURLBERT Stockton, Ill.

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Breeding stock of both sexes from a high producing herd for sale. Grades and purebreds of all ages now available. Write or come to the farm. **HAWTHORN-MELLODY FARMS, Libertyville, Illinois.**

POLLED HOLSTEINS You can now breed hornless Registered Holsteins by using one of our polled bulls on your cows. Nothing is changed but the horns.

THE GARDNER FARM
Robert W. Gardner Solon Mills, Ill.

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Established 1901—**OFFERS, SIX CHOICE BULL CALVES,** three to nine months old (none older on hand), sired either by Pabst Embel Wayne, a 4% proven Sire, or by our great young sire, **Regal Pearl,** a son of Pabst Regal, from a 700 lbs. 2x. Excellent cow. Dams are all A.R. cows, with 2x records from 400 lbs. fat as 2 yr. olds, up to 500 and 600 as mature cows. Several from 4% dams. Send for pedigrees and photos.

A. J. LASHBROOK, NORTHFIELD, MINN.
(Accredited and certified herd)

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25 Holstein Heifers

THAT ARE HEAVY SPRINGERS

These are top Quality Purebred Holsteins, but are not registered. These heifers are all calfhood vaccinated and bred to a high record purebred bull.

We also have several high record bull calves out of proven sires that will make real prospective herd sires. We invite your inquiry. Phone Graysville, Indiana, 8R10.

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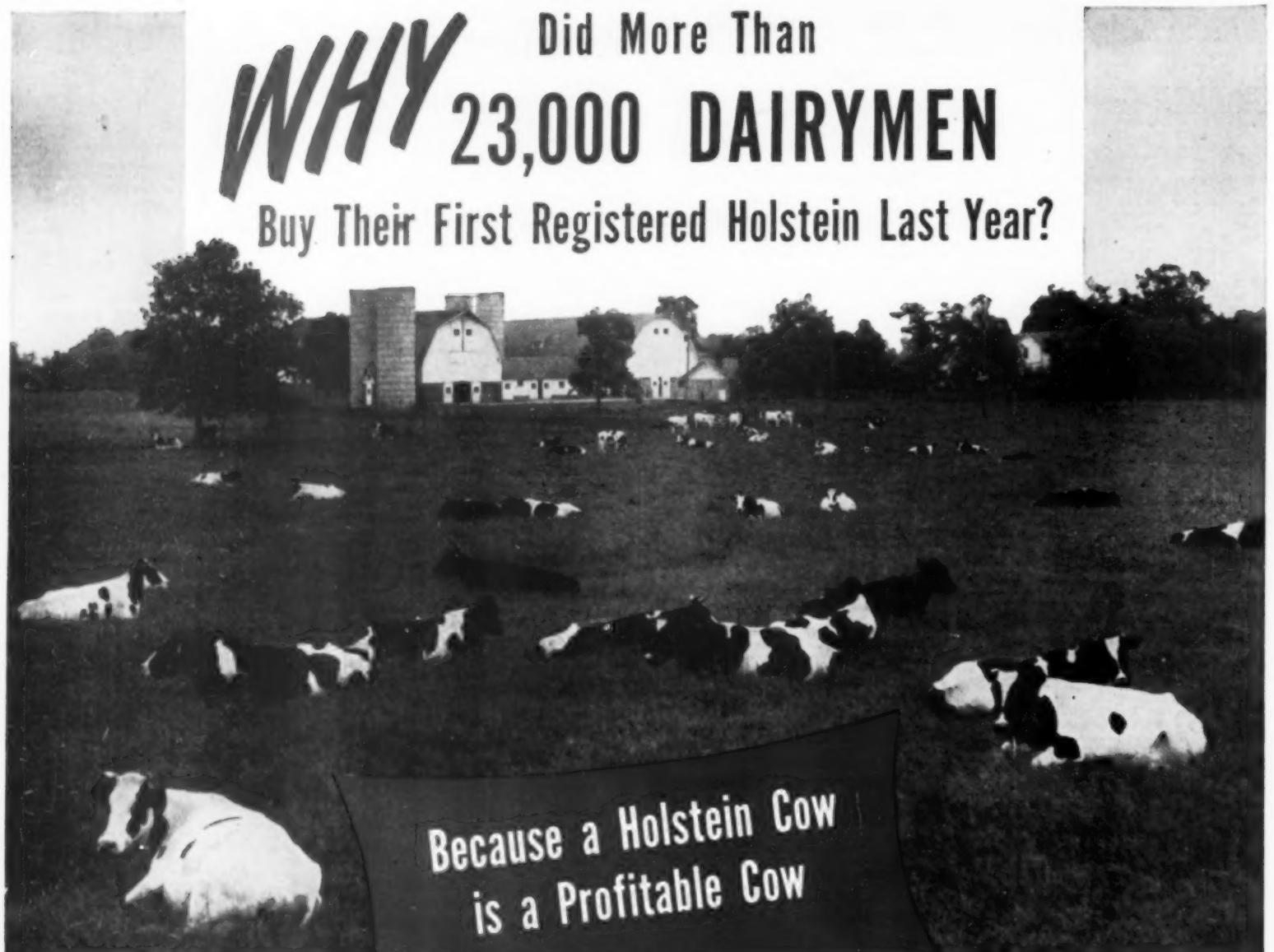

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Here in a beautifully illustrated (full color) book is the story of the Holstein breed — the reasons for its rise to favor — the characteristics that have established its profit-making power — and its promise for the future. It's a book every dairyman will appreciate. It's yours for only 50c per copy. Order your copy today.

IT'S a fact — more than 23,000 dairymen bought their first registered Holstein last year. During each of the past several years 20,000 to 26,000 new breeders have made their first purchase of registered Holsteins.

What causes this popularity — this steady growth? It isn't idle curiosity — cows aren't purchased on that basis. It must be, therefore, the efficient, productive ability of the big black and white cow.

Check these characteristics and we're sure you will agree that profit to the owner is the reason why Holsteins account for nearly half of the registered dairy cattle in the country — High Milk Production — High Butterfat Production — Long Productive Life — Large, Rugged Calves — Ability to Utilize Home Grown Feeds — Low Production Costs. Add to this Holstein adaptability to any climate — and you easily see why the Holstein is the cow of today — the cow of tomorrow.

There's a Future with HOLSTEINS

CLIP AND MAIL

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Brattleboro, Vermont

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When thinking of Uniform High Production and Type, your Wisconsin institution Holsteins speak for themselves. Home bred and developed by intensified linebreeding of 37th and S.P.O.M. A few of the great sires bred by us and whose names are synonymous with the best in type and production are:

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WISCONSIN MASTERPIECE
SOWISCOL B. B. CREATOR

Sons and grandsons of these great sires are in our herds and in the best herds throughout the world.

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If you're looking for cows or heifers come to Dodge County where good Holsteins are raised. Buy them first-handed and save expenses. We have 250 head of bred and springing grade and purebred Holstein cows and heifers on hand at all times. Can furnish transportation for any number large or small.

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Good Holstein cows, heifers, and bulls; either registered or grades—one or a carload—Come to Jefferson County, Wis. Let us quote you prices on quality cattle from healthy herds. Free fieldman's services.

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Fort Atkinson Wisconsin

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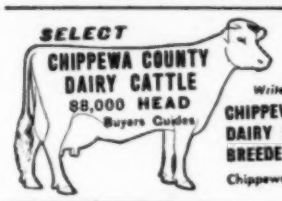

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offers special sales and fieldman service on grade and pure bred cattle from one of Wisconsin's largest Dairy counties where 15,000 cattle are on D.H.I.A. test and more than 30,000 are bred artificially. For information write **Frank E. Cairns, Fieldman, 353 W. Johnson St., Madison, Wis. Office Phone Dial 6-0513, Residence Dial 3-5538.**

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Good quality Registered and grade Holstein cows and bred heifers. Also some Registered bulls selected from good producing, healthy herds. Fieldman Service.

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Watertown Wisconsin

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Purebreds and grades, many of Pabst, Carnation, or Rag Apple blood lines. Selected from the best herds in the state of Wisconsin where better purebred sires have been used for over 30 years. We cover fifteen of the leading dairy counties in Wisconsin.

We keep in touch with the best breeders of both purebred and high grades. At present, there are special offerings in springing, high grade cows and heifers in carload or truck load lots. We service over 700 herds. Our motto is—"Quality at the lowest prices possible."

Services—W. L. Baird, Arthur Bennett, Harvey Swartz, Ed Weyker, Frank Swartz, Don Stouffer at your disposition—can handle orders for truck or carloads. Telephone 3644, Waukesha, Wis., or write for information to

INTER-COUNTY DAIRY CATTLE ASSOCIATION

Waukesha Wisconsin

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Wisconsin Admiral Burke Lad's (V.G.) transmission of high production is inherited by his sons, Pabst Roamer (Ex.) and Pabst Regal (Ex.), as shown by these averages of their daughters—Burke's 64 daughters average: at 2 yrs. 4 mos. 17,094 m. 3.67% 625.2 f. 3X. Pabst Roamer's 52 daughters ave.: at 2 yrs. 5 mos. 17,857 m. 3.67% 655.3 f. 3X. Pabst Regal's 33 daughters ave.: at 2 yrs. 5 mos. 18,240 m. 3.77% 686.8 f. 3X.

Young bulls carrying Burke breeding are available to head your herd. Semen also available. Write for terms.

Pabst Regal "Excellent" Gold Medal Proven Sire

PABST FARMS, Inc. Acc. & Neg. Oconomowoc, Wis.

SONS OF PRINCE AND LAD

Willow Springs Crescent Prince and Hellrose Hazel Lad, two of the main herd sires at Hickory Creek Farms are each from "Excellent" cows and each are sired by "Excellent" bulls. They have both sired All-Americans. Young sons of either of these bulls—Prince an intense Crescent Beauty bred bull, and Lad an intense Hazelwood, are available from "Excellent" and "Very Good" high record cows.

HICKORY CREEK FARMS McHenry, Illinois

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300 REGISTERED HOLSTEINS and **HIGH GRADE DAIRY COWS AND HEIFERS** of all breeds always on hand. We have in our barns, or will buy for you, any kind of cattle you want. We have our own fleet of trucks and can deliver cattle anywhere. Write or phone your wants and get our prices before you buy. Every cow absolutely guaranteed as represented. Our customers came from 25 states and foreign countries last year. We will appreciate your inquiry. Whether for one or one hundred head. There is no order too small or too large for us to handle. Visitors always welcome at any time, whether you come to buy or just to look. We are never too busy to show you around.

MERLE H. GREEN AND SONS Elsie, Michigan

TYPE - RUMPS - PRODUCTION - TEST

All tied up in "Attilla," born 11-8-51, big, typy, priced right.

His Sire—All-Missouri Junior Yearling Bull, 1951.

His Dam—Classified VERY GOOD at 2 yrs., has a VERY GOOD rump, and produced 514 of fat, 4%, 2X, HT, as a Jr. 3 yr. old. She is the daughter of a SILVER MEDAL PRODUCTION SIRE.

Sire's Dam—VERY GOOD, with an EXCELLENT rump.

Sire's Sire—VERY GOOD, with a VERY GOOD rump, has 5 EXCELLENT sisters, and an EXCELLENT brother. 8 sisters have EXCELLENT rumps.

Sire's Maternal Sister—EXCELLENT, with EXCELLENT rump. Twice All-Missouri Female. Twice member of All-Missouri Produce, (once with sire of calf), twice All-Missouri Best Udder; 561 of fat, 3.9%, 2X, HT, as a Sr. 2 yr. old. **Another Maternal Sister** classified VERY GOOD, with EXCELLENT rump, with 534 of fat, 2X, HT, as a Jr. 2 yr. old.

SCOTT MEYER & SONS Hannibal, Missouri

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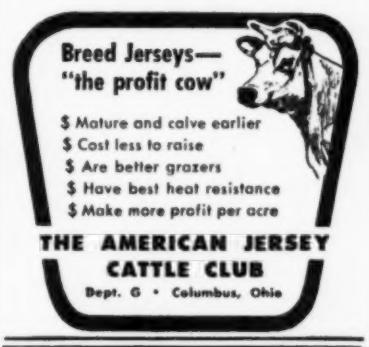
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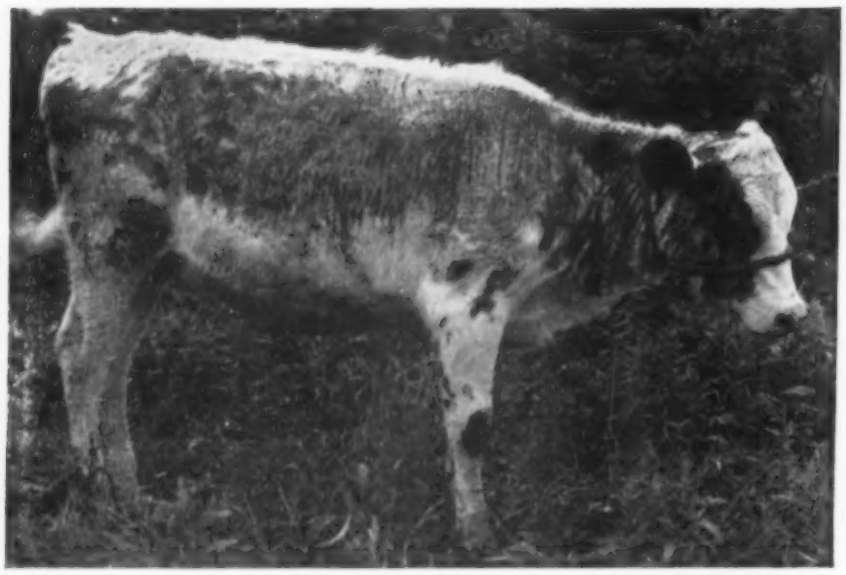


A calf with X-disease. Note shoulder skin condition. Photo courtesy of Dr. Peter Olafson.

It May Not Be Mange

by E. A. Woelffer, D.V.M.

If the skin thickens over shoulders, neck, and face, and the animal does not rub, it may be X-disease.

IT WAS just a short five years ago that Dr. Peter Olafson of Cornell University recognized and described X-disease or hyperkeratosis, as we now know it. Since 1947, it has been observed in more than 30 other states. The baffling part of the picture is that we still do not know the cause of this malady.

This is the time of year when you should look for signs of this new disease. Young stock appear to be most susceptible. Reports indicate that the disease is more serious in the South. In a preliminary survey of five southern states, 26 affected herds, normally containing 4,120 cattle, showed 865 animals affected, or 21 per cent, and a death rate of 18 per cent.

The disease gets its name from the changes that appear on the skin. The first part of the name, "hyper," means above or beyond. The second part, "keratosis," refers to a horny growth or callous condition. Because one of the principal symptoms is a pronounced thickening and folding of the skin, the name hyperkeratosis was given to the disease.

Sometimes the folds of the skin of the neck of affected animals are so arranged that they form crisscross or diamond shaped designs. It was the arrangement of these skin folds that prompted scientists to first label the condition X-disease.

How to recognize the disease . . .

A watery condition of the eyes and nose are usually the first signs observed. This is followed by salvation or slobbering and a loss of appetite. Since the animals eat very little or refuse food entirely, a more or less rapid loss in weight results. Often there is a diarrhea.

By the end of this acute or beginning state of the illness, the animals, particularly calves, show a more pronounced nasal discharge and small pit-like depressions or ulcers around the muzzle. Similar lesions are usually present in the mouth and on the tongue. These lesions then grow larger or spread out and we observe a condition that in many ways resembles "sore mouth." Later they often form small projections that are hard and horny. All this is painful and accounts largely for the profuse slobbering and refusal to eat.

Skin changes outstanding symptom . . .

Many of the animals show a depression and a stupid, unresponsive attitude together with the progressive thickening of the skin already mentioned. Skin changes usually start over the withers, on the sides of the neck, over the cheeks, and back of the shoulder. The lesions finally spread over the body, usually involving the upper two-thirds and sometimes the udder.

There is a loss of hair and the skin becomes dry and leathery, thickened and deeply creased or wrinkled. The changes in the skin cause little discomfort. There appears to be no itching. The animal does not attempt to lick or groom itself. Possibly the reason for this is that the animal is too depressed to be disturbed.

Milking cows drop in milk and may completely dry up. Some cows fail to calve at term and may go overtime from one to four weeks. The udders on the cows with the prolonged gestation periods fail to develop and the pelvic ligaments do not relax. The calves from these cows are long-haired and are born dead or die in a few days.

Retained afterbirths, mastitis, and septic metritis are common in cows affected with the disease. There is a disturbance of the heat-regulating centers in many of these cows which causes them to chill easily or become overheated. Advanced cases often show slight anemia.

Besides the symptoms and lesions described, there are other lesions located in a number of the internal organs that are very characteristic of the disease. These are of great importance to the veterinarian in arriving at a diagnosis.

May be mistaken for mange . . .

The skin lesions could be mistaken for mange but mites are not present and itchy symptoms are absent. The disease has also been confused with virus diarrhea. This is an acute, or rapidly developing disease, while hyperkeratosis is chronic, which means it progresses slowly.

The death rate is low and recovery is rapid and complete in virus diarrhea while in severe hyperkeratosis the mortality is relatively high and recovery is slow. In hyperkeratosis, the disease extends for several weeks or three or more months before the animals become well again.

Latest report on research . . .

In the recently issued report of the Chief of the Bureau of Animal Industry Agricultural Research Administration, 1951, the bulletin has this to say regarding the cause of the disease. "Extensive investigations on hyperkeratosis, or X-disease, have not yet revealed the cause of this condition."

A study of the disease was begun in 1950 and is being continued in cooperation with 16 states and the Bureau of Plant Industry, Soils, and Agricultural Engineering. The report reveals that workers at the Indiana, Nebraska, New York, and Pennsylvania stations produced experimentally for the first time what appeared to be hyperkeratosis in cattle. The bulletin summarizes the work at the various stations as follows:

Work at the Indiana Station showed that hyperkeratosis developed in experimental calves on a farm where field cases of the disease had been in 1947 and 1949. The experimental calves were on pasture with access to a barn. No animals had been on the farm for four months before the calves had been brought in.

At the Nebraska Station, an outbreak of hyperkeratosis among 160 yearlings appeared to be caused by feed. Experiments indicated that the disease was not contagious. The suspected feed was given to new test calves and the disease was produced, thus confirming the previous observations. Heifers surviving the outbreak are being used to determine the effect of this disease on reproduction.

At the New York State Veterinary College (Cornell) a processed concentrate regularly and rapidly produced hyperkeratosis in cattle. The toxic substance associated with the disease in this case was eliminated in the milk. In two calves alterations in the structure of some of the sex organs were found when this concentrate was fed experimentally. In addition to these changes, the same symptoms and lesions of the disease, such as watering of the eyes and hardening and thickening of the skin, as are found in naturally occurring outbreaks of the disease, were produced in these two animals and in a number of other cattle fed this concentrate.

At the Pennsylvania Station, hyperkeratosis developed in experimental calves fed on hay procured from a farm where there had been two serious outbreaks of the disease when this hay was fed. Two groups of calves from farms with no history of hyperkeratosis were taken to a barn on a farm where the disease had never been found. The suspected hay, together with hay produced elsewhere and having no known connection with hyperkeratosis, was also taken to this farm. The calves fed on the suspected hay developed hyperkeratosis, but the control group did not. In other experiments, the disease appeared in a barn following five periodical disinfections. Of 11 calves placed in the barn, five were fed hay produced on the farm where hyperkeratosis had occurred and six were fed hay from the station. Ten of the animals developed the disease.

At the Georgia Coastal Plain Experiment Station, in investigations on the possible cause of hyperkeratosis, calves were injected with inocula prepared from 96 tissues, secretions, and excretions from field cases. Liver changes similar to those in field cases of hyperkeratosis were produced. In one yearling, the skin of the neck became thickened. Some calves had temperature rises following inoculations and an infectious agent in the nature of a pneumonia-producing virus appears to have been encountered. In these extensive studies no case of hyperkeratosis was produced.

At the Texas Station, efforts to demonstrate an infectious agent have also given negative results. In some experimental cases and in some field cases, a mild degree of intermittent fever of short duration has been found.

At the Tennessee Station, there was indication that hyperkeratosis as diagnosed in some states may be two different diseases. One of these is the same as that which has been reproduced at several stations. The other has symptoms similar to hyperkeratosis in its early stages. Some studies indicate that it is infectious, and its possible relationship to hyperkeratosis is being studied.

THE END

Veterinary Column

E. A. WOELFFER, D.V.M.

Cattle Grubs

It isn't too late to do something about cattle grubs particularly if you are living in the northern half of the United States and Canada. And something should be done because the loss from the destruction they cause is tremendous. The total annual losses caused by them is estimated to be over 65 million dollars.

The most apparent loss is damage to the hides in both beef and dairy cattle. More than 27 per cent of all hides reveal grub damages.

Grubs cause a drop in milk production. Growth in young cattle is impaired. Grub-free cattle make as high as 20% greater gains than those suffering from the injurious effects of these pests.

Most of us are quite familiar with the life cycle of the cattle grub. We'll describe it briefly, however, just to bring ourselves up to date.

Heel Flies Start Trouble

In spring and early summer heel flies lay their eggs on the hair of the cow's legs. The eggs hatch and the tiny grubs bore their way through the skin. From here they work their way through the tissues and muscles to the chest and abdominal cavities. While still quite small, the grubs then work their way backward and upward toward the back of the animal. When they reach the back they begin to bore their way through the skin from the inside out.

At first, the point of exit is nothing but a small rise or bump. Gradually the bump becomes larger and a tiny hole makes its appearance in the center. The opening finally becomes large enough to permit the full grown grub to crawl or wiggle out and drop to the ground.

On the ground, the grub changes to another stage called the pupae. From this stage, the fly is developed and the life cycle is repeated.

Two species of heel fly larvae or grubs are found in cattle, Hypoderma lineatum or common grub, and Hypoderma bovis, the European type. Their life cycles are identical. The European warble wasn't found in the United States until 1910 although it is now the leading grub pest in Eastern Canada, New York State, and New England.

Grubs Can be Controlled

Grubs can be controlled but it takes an all out effort by everyone in the neighborhood to do an effective job. Here's what you can do.

From now until the first of April is about the right time to apply treatment because the grubs are working their way out. A rotenone powder made up of 1.5 to 2.75 per cent rotenone dust and a neutral talc or other suitable non-alkaline powder dusted on the back at the rate of 2 to 3 ounces per animal and gently rubbed in with a few strokes of the hand will kill the grubs.

The application should be repeated in 3 to 4 weeks to take care of the grubs that have been late in coming through. Occasionally a third application is advisable. One pound of the powder will dust from 12 to 18 head depending upon the length of the hair coat.

For treating large herds, particularly range cattle, a rotenone solution is also very effective. A power sprayer with a pressure of 200 to 400 pounds is used. The nozzle should be no farther than 4 inches from the backs of the animals and a full gallon of spray used on each one.

The spray material is made up by thoroughly mixing 7.5 pounds of 5% rotenone dust with 100 gallons of water. Treatments should be repeated at about three-week intervals. Usually 3 or 4 applications are sufficient.

Since secondary infections with pus and abscesses may occur, it is best not to squeeze out the grubs with your hands.

Did you know:

1. That the Red River Valley of North Dakota is a virtually warble-free area. The country is so flat that surface moisture is thought to create an unfavorable environment for the freshly dropped grubs.
2. That two great cattle raising countries of the world, Australia and South Africa, are free from ox warbles.
3. That if one started walking north from San Antonio, Texas, on December 1 and reached Vermont, September 1, he would encounter heel flies every mile of the way.
4. That the number of cattle hides ruined because of warble damage in a single year would furnish shoes for an army of nine million men.
5. That calves are more vulnerable to the attack of heel flies because they have not acquired the instinctive fear of this parasite shown by older cattle.
6. That sometimes the larvae get "off the beam" and find lodgment in the most unexpected places. Thus some cases of posterior paralysis noted in cattle are due to lodgment and growth of a larval grub within the cavity of the spinal canal.

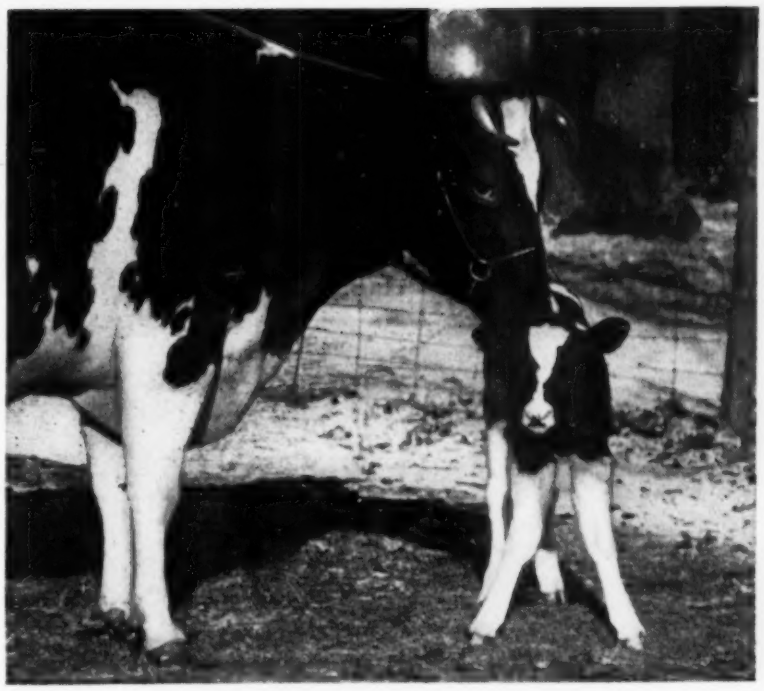
WHITE SCOURS IN CALVES

We are having a lot of trouble losing our calves with white scours. They are perfectly normal when born but at end of third day die.
So. Rutland, N. Y. C. S. B.

The germ that causes white scours in calves is very infectious and, as you have already experienced, is difficult to control. Treatment isn't always too successful. We would suggest, if possible, you have your cows freshen in another barn or at least in the opposite end of the barn from where they have freshened in the past. Also, be sure to clean and disinfect the box stall after each calving and have it well-bedded when the new calf is born.

In addition, we suggest you have your veterinarian inject anti-white scours serum very soon after the calf is born. In addition he might want to inject three to six hundred thousand units of penicillin and possibly prescribe a sulfa treatment such as sulfathaladine or sulfamerazine. Sometimes it is also advisable to inject small doses of anti-hemorrhagic septicema and/or bacterin.

If your cows are not receiving a good supply of alfalfa hay or silage, it may be advisable to have your veterinarian prescribe heavy doses of vitamin A two to three weeks before calving. After the calf is born, keep it in a comfortable, well bedded pen if possible. If not, be sure and not crowd them too much.



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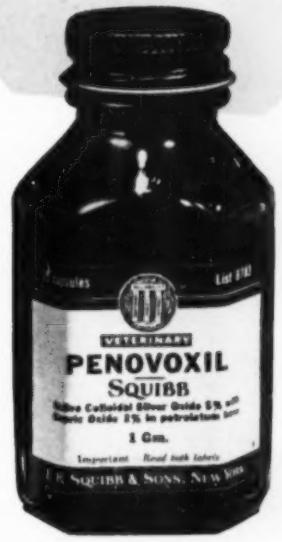

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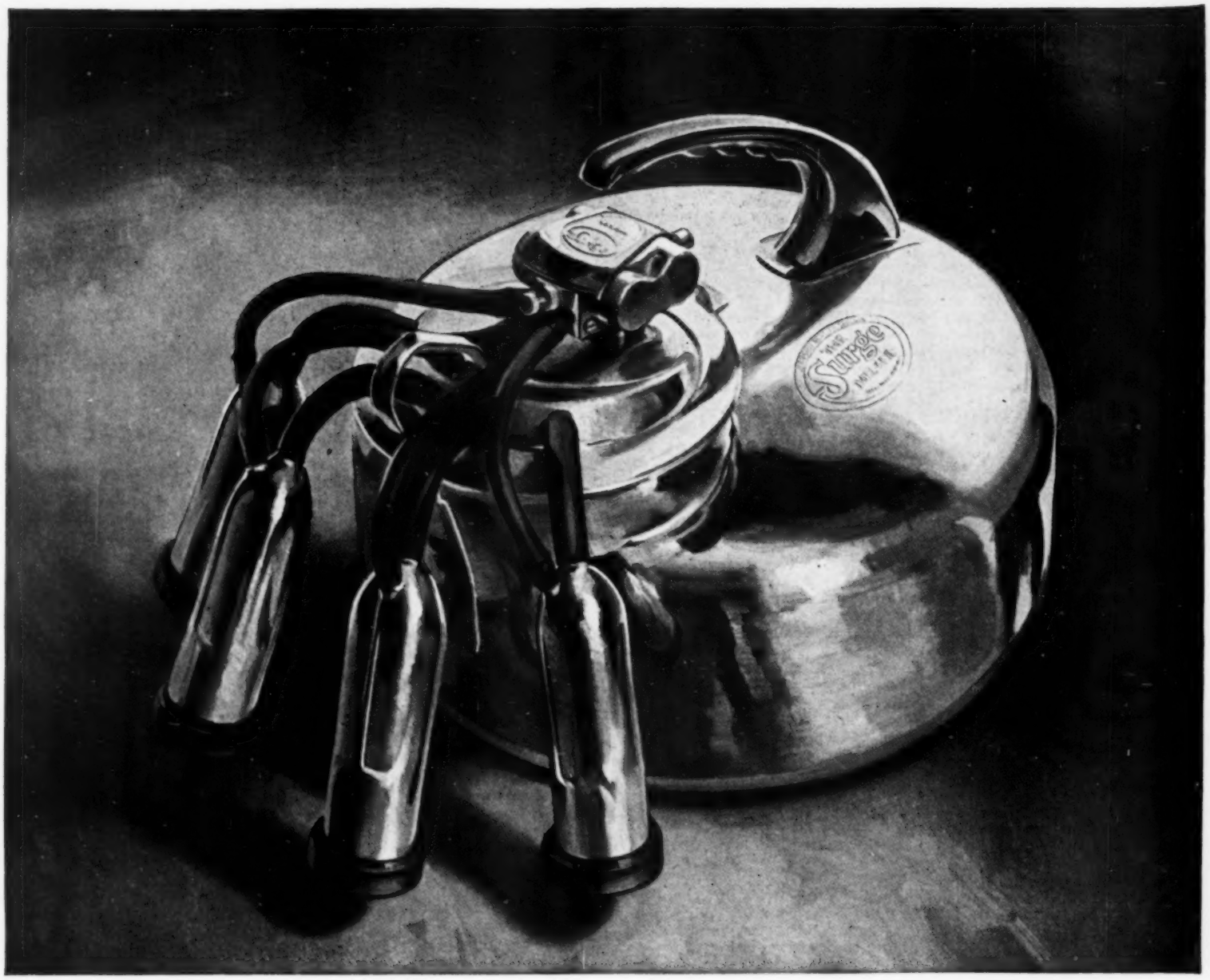

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